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AGRICULTURE

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MAJOR CROP PROGRESS AND WEATHER REPORTING

IMPROVED CORN CULTIVATION IN UKRAINE URGED

Kiev PRAVDA UKRAINY in Russian 30 Jun 82 p 1

/Article by V. Tsikov, director of the All-Union Scientific Research Institute of Corn, candidate of agricultural sciences, and S. Darovskiy, leading specialist of the Main Grain Administration of the Ukrainian SSR Ministry of Agriculture: "Thorough Care for the Giant Crop"

/Text Comrade V. V. Shcherbitskiy stated the following at the June Plenum of the Central Committee of the Communist Party of the Ukraine: "We should do our utmost to increase the production of corn grain to 8 or 10 million tons, that is, to double it, during this five-year plan." The task of obtaining no less than 7 to 7.5 million tons of corn grain, or 36 to 37 quintals per hectare, this year is set.

Grain corn occupies 1.92 million hectares in the Ukraine this year. Two-thirds of this area are cultivated according to industrial technology. About 10,000 mechanized links and detachments have been established for this. All of them fight for high harvests, including 321 links try to grow 100 quintals of grain per hectare and more on an area of 25,000 hectares.

There are now favorable conditions for a high harvest almost everywhere. An optimal plant density has been formed, sown areas are basically clear of weeds and, where they have appeared, many links and detachments have carried out harrowing and one and even two interrow cultivations.

Nevertheless, on a number of farms in Cherkasskaya, Odesskaya, Kiev, Nikolayevskaya and Kirovogradskaya Oblasts corn fields are weedy, especially those where corn is grown according to ordinary technology for grain and silage. Unfortunately, in the last few years many specialists have slackened their attention to ordinary mechanized technology and have lost the wealth of experience in the production of high harvests on such fields.

For example, on most kolkhozes in Novgorodkovskiy, Aleksandrovskiy, Bobrinetskiy and Novoarkhangel'skiy Rayons in Kirovogradskaya Oblast the areas sown with corn are overgrown with bristle grass and sowthistle and the available KRN-38 weeders and hillers are not utilized. Meanwhile, corn plants have reached the phase when the period of care of crops ends. On weedy areas it is now necessary to carry out the last cultivation of interrow spacings with cultivators with KRN-52 (53) moldboard shovels for covering weeds with earth in protective belts.

It has been demonstrated that the hilling of corn plants almost fully destroys weeds whose height does not exceed 1 cm. Weeds up to 5 cm high are covered with earth 50 to 80 percent and higher than 5 cm, 25 to 40 percent. In the experiments of the All-Union Scientific Research Institute of Corn the grain harvest with a double cultivation of interrow spacings alone was 52.9 quintals per hectare and, where weederers were used during the first cultivation and cultivators with moldboard shovels, during the second, the harvest was higher--60.3 quintals. Last year on plots where industrial technology was used the harvest without an interrow cultivation was 57.4 quintals per hectare and with one-time hoeing and hilling, 61.2 quintals. Where a twofold cultivation was carried out--the first time with weederers and the second time with hillers--every hectare produced 63.3 quintals of grain.

It should be kept in mind that on cultivators duckfoot tines and hillers are installed at the depth of 5 to 6 cm with a protective belt of no less than 20 cm. When the unit's speed is 8 km per hour, an earth ridge 6 to 7 cm high is created in a row. It bends toward the earth and covers weeds even 10 to 12 cm high. With high-quality work no more than 4 to 5 percent of the corn plants are damaged. If there are no series KRN-52 (53) hillers on farms, locally made hillers or hillers used by potato growers should be utilized.

On fields that did not receive sufficient fertilizers before sowing their necessary amount should be applied during supplementary feeding, regardless of the cultivation technology. It is also important to establish permanent control over corn crops on irrigated land and to ensure a 24-hour utilization of sprinkling machines.

The republic's corn growers should do their utmost to mark the anniversary year with shock labor and high harvests of this valuable grain fodder crop.

11,439

CSO: 1824/458

MAJOR CROP PROGRESS AND WEATHER REPORTING

KAZAKH GRAIN COSTS DEEMED TOO HIGH

PM030907 Moscow PRAVDA in Russian 30 Aug 82 pp 1-2

[Article by correspondent Ye. Zaytsev and A. Petrushov under the rubric "Harvest Watch: Increasing the Return Per Hectare": "The Value of Grain"]

[Text] Kazakh SSR--During the harvest, which is now underway in the Virgin Land steppes, in addition to talk of yields, rates and work quality, you can quite often hear the words price, prime cost, profit.... A very noteworthy circumstance. Grain growers are concerned not just with increasing productivity but also with high profitability in grain farming.

On familiarizing ourselves with the progress in harvesting in the republic's major granary--Kokchetavskaya Oblast--we did not fail to visit the Zlatopolskiy Sovkhoz in Shchuchinskiy Rayon, where a good harvest is obtained any year. The farm is also noted for producing inexpensive grain. The prime cost of a quintal of grain is a little over R4--33 percent below the average indicator for the republic.

Chief economist P. Vins especially pointed out that the increase in crop yields helps to reduce the prime cost of the grain. Over the past 6 years, annual grain yields have averaged 21.5 quintals per hectare--an increase of 7 quintals.

The sovkhoz has invested a lot of money in the land, although no more than on other farms. It is all a question of how it is spent. It has been invested in assimilating modern technologies, progressive forms of labor organization and remuneration have been used. The sovkhoz was the first in the rayon to introduce promising new strains and organize the large-group utilization of equipment. In short, money has been spent with a view to increasing the return per hectare. If you consider that at all stages of grain crop cultivation the work is performed well, with a saving on the resources allocated, then the reasons for the quite high production efficiency will become clear.

This is not the only example. A. Ismailov, director of the XXIII Syezd KPSS Sovkhoz in Enbekshilderskiy Rayon, showed us some curious statistics. The last few years have been arid, but grain harvests have steadily increased. The skillfully utilized material and technical arsenal played

a considerable role here. The farm increased the amount of fertilizer applied, improved soil tilling and assimilated new forms of collective interest and responsibility for a high end result. This is how the collective's efforts have repaid themselves: The yield of cereal crops has doubled, the prime cost of 1 quintal of grain has fallen to R5.9, and profits have increased to R2 million. Product quality has improved. Deliveries of strong wheat have increased.

Questions connected with assessing the economic activity of agricultural enterprises are quite complex. But time brings them to the fore. What is needed is a thrifty attitude to the utilization of existing resources. And here it is quite impossible to manage without economic levers. The CPSU Central Committee May (1982) plenum devoted special attention to strengthening them and making efficient use of them.

In the 10th Five-Year Plan Kazakhstan's kolkhozes and sovkhoses made approximately R3 billion profit on grain sales--50 percent more than during the previous 5 years. Is that a lot or not? Economists consider it little. Only on one-fifth of the republic's sovkhoses was the prime cost of 1 quintal of grain between R4 and R6. On the majority of farms it was higher than planned, and on some grain production made a loss.

In the republic as a whole the prime cost of a quintal of grain is increasing. Last year it reached almost R8 on sovkhoses. Of course, there are a number of objective reasons which have caused this indicator to rise. Expenditure per hectare of arable land has increased. Why? They have begun tilling the soil better, applying more fertilizer, sowing with selected seeds and gathering the harvest more quickly.

Take, for example, harvesting--the costliest stage. Today 105,000 combines, 75,000 reapers and tens of thousands of trucks are involved in it. More than 6,000 grain-cleaning centers are operating. Some 360,000 people are employed in harvesting. And all this naturally affects the prime cost of grain.

Economists have also cited other reasons, including the rise in the prices of fuel and lubricants, fertilizers and individual types of agricultural equipment. Nonetheless, their arguments cannot be considered exhaustive. The question arises: Are the reserves of the republic's kolkhozes and sovkhoses being utilized with the maximum efficiency? In other words, is it possible to produce more grain more cheaply with the same capital?

Let us turn to the experience of Tselinogradskaya Oblast's Krasnoyarskiy Sovkhoz. Set up as a grain farm in the sixties, it has become a major Virgin Land granary. Last year its collective sold the state 27,500 tons of high-quality grain against a planned 20,500 tons. In terms of the provision of fixed capital the sovkhos is very average, but as regards economic indicators it is among the best not only in the rayon but also in the oblast. The profit on selling 1 quintal of grain is twice the average indicator for the oblast. Last year the grainfield brought the sovkhos cash office R4.3 million profit. The farm carefully sees to it that the

only expenditure that is allowed to increase is that which brings about increased yields and improved product quality.

The sovkhos has introduced internal farm accounting. Targets are set for shops, teams, the repair workshop and the motor garage. They clearly define the limit of expenditure. The economic service strictly monitors the expenditure of the funds allocated. It is no coincidence that there has not been a single instance of overexpenditure of the wages fund on the sovkhos in recent years. Many operations in the field, on the threshing floor and in the workshop are performed with a saving. In short, where people know how to save and economize, they get both profits and high profitability.

Implacability toward extravagance and unnecessary expenditure, a policy of innovatory questing, involvement in efficient management--a person does not assimilate these properties straightaway. They have to be cultivated. A great deal here depends on economic service workers, among whom there are many communists. There are now 2,320 economists and accountants on the oblast's farms. Economic analysis bureaus and groups have been set up everywhere, and middle-tier leaders and machine operators participate in their work as well as specialists. An impressive force! But how is it being utilized?

We visited a number of farms in Astrakhanskiy Rayon and inquired about the work of economic services. Everywhere figures and more figures were cited. But we felt that there was no analysis, conclusions or proposals behind them. No wonder that none of the people involved in the harvest whom we met could explain why the prime cost of grain is coming down extremely slowly. Machine operators were unable to say how much an hour's downtime for a tractor or a combine costs, nor could team leaders say what would result from an extra day's harvesting. And therefore, apparently, many of them take a calm attitude toward losses of worktime and overconsumption of fuel and spare parts, do not value fertilizers and graded seeds and make poor use of them.

"We seldom speak about prime production costs, and we poorly analyze spending on production," V. Yeremeyev, secretary of the party bureau of the Tretya Pyatiletka Kolkhoz, admitted.

We leafed through the minutes of party bureau sessions and party meetings. What do they mention? As usual, yields, fertilizers, machinery. And not a word about what the Virgin Land ear of grain costs.

The results of enterprises' economic activity are regularly summed up at the Astrakhanskiy Raykom. However, the talk there differs in almost no respect from the talk at a party meeting, say, on the aforesaid Tretya Pyatiletka Kolkhoz. Neither last year nor this year has the agenda of plenums and bureau sessions included questions of the efficient working of arable farmers or of cutting prime production costs.

Meanwhile, the state of the economy gives rise to serious alarm. Nine out of 15 farms finished last year with losses. The capital-output ratio fell 13.2 percent. Shortcomings in payment for labor and instances of mismanagement and extravagance have been uncovered on the Astrakhanskiy, Put K Kommunizmu, Kzylzharskiy and certain other sovkhoses.

There are many farms in the oblast like the Krasnoyarskiy, Pervormayskiy, Shuyskiy and Sochinskiy Sovkhoses, where the center of the competition for economy and thrift was long ago shifted to teams and sections. The study and generalization of their experience is of great practical significance. However, it has not yet enjoyed wide dissemination.

So far we have spoken of problems in the grain farming economy, whose resolution largely depends on kolkhoz and sovkhos leaders and specialists. It is their direct duty to choose the optimum farming system, introduce autonomous financing and organize the competition to achieve high end results. But problems which go beyond the professional abilities of specialists have also assumed no less acuteness in recent years.

What sort of problems are these?

Take the Kirovets [tractor], for example. It is a powerful tractor. There is a large pool of them in Kazakhstan. A lot of money has been spent acquiring them, but they have not yet given a full return. Why? The range of machinery and implements is poor. If farms now had more wide-cut equipment, machine operators would appreciably reduce the time taken on fieldwork. And that means a harvest increase.

The cost of grain-harvesting combines has increased considerably in recent years, but their productivity has not increased very much. Threshing times are still long. According to plan, the harvesting of grain crops is to be completed in the republic in 22 workdays. With such a protracted harvest it is hard to avoid losses.

Expenditure on motor transport is still high. An appreciable reduction in it has been secured in Kustanayskaya, Severo-Kazakhstanskaya and Kokchetavskaya Oblasts. Above all as a result of using large-capacity trucks with trailers on transport operations. But once again a problem arises--there simply are not enough trailers.

A special mention about economic relations between kolkhozes and sovkhoses and procurement workers. We recall a meeting on Kokchetavskaya Oblast's Urumkayskiy Sovkhos. Its director V. Chernenko was indignant:

"Every year the quality of the grain is understated at the grain reception center. As a result, we lose thousands of rubles."

Let us straightaway make this proviso: By no means all farms are in this position. We did not hear any complaints on the aforementioned XXIII Syezda KPSS Sovkhos in Enbekshilderskiy Rayon. Last year the farm made

more than R1 million profit on grain sales. The people there keep a strict eye on the quality of their produce.

"Part of the operations to evaluate produce, including grain, should in general be transferred directly to the farms, using the local metrological base," sovkhos specialists remarked. "And where it is weak, our partners could reinforce it."

The majority of leaders propose improving ties with procurement workers. The essence of the proposal is that a coefficient of participation in the distribution of profits is needed. Formulated and approved by the Agro-industrial Association's Council, it must be fulfilled by all partners. This would remove the existing contradictions between farms and grain reception centers, ensure an atmosphere of cooperation and improve product quality.

...A very great deal of rain has fallen during the summer in many Virgin Land rayons. In places the crops are stunted and sparse. This circumstance makes special demands on the harvest. It is more important than ever to prevent losses en route from the field to the elevator. Preserving everything that has been grown means fulfilling the grain sales pledges adopted before the state and strengthening the farms' economy.

CSO: 1824/541

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

COMMISSION FOR IRRIGATION--Zaporozh'ye, 15 Jun--Steppe Zaporozh'ye now has 188,000 irrigated hectares and by the end of the year there will be 205,000 hectares. A special commission for the control over the quality of reclamation construction and an efficient utilization of renovated land was established in the oblast. A few days ago it examined the problem of the organization and course of summer irrigation. The commission approved the experience in the organization of irrigation on Vasil'yevskiy and a number of advanced farms in Akimovskiy, Zaporozhskiy and Veselovskiy Rayons. All sprinkling systems were put into operation there. They operate around the clock. However, some farms delay the beginning of irrigation and miss the specified dates. This kind of error, as noted at the commission meeting, is fraught with unfortunate consequences. The task of expanding the front of irrigation work in the next few days and of carrying it out in two shifts everywhere was set. /By N. Ivanchenko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 16 Jun 82 p 1/ 11,439

CORN SOWING--Kherson, 11 Jun--Corn crops are developing well on the fields of the Sovkhoz imeni 60-Letiya Sovetskoy Ukrainy in Belozerskiy Rayon. Despite the cold spring, machine operators sowed in strict accordance with the requirements of the new technology that they had developed together with the Ukrainian Scientific Research Institute of Irrigated Farming. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 12 Jun 82 p 1/ 11,439

RICE SOWING--Ukrainian farmers completed rice sowing. Under the conditions of the late cold spring two-shift labor organization and the use of combined units helped them to cope with work within schedules close to the optimum. /Text/ /Moscow EKO-NOMICHESKAYA GAZETA in Russian No 22, May 82 p 2/ 11,439

HARVESTING OF WINTER BARLEY--Kherson--Farmers in the southern rayons of Khersonskaya Oblast have begun to harvest winter barley. /Text/ /Moscow TRUD in Russian 6 Jul 82 p 1/ 11,439

AFTERHARVEST SOWING OF MILLET--Kherson, 12 Jul--Farmers on the 1 Maya Sovkhoz, the Kolkhoz imeni Lenin, the Rossiya Kolkhoz and other farms in Golopristanskiy Rayon are threshing grain crops as a team. The fact that most farms are trying to prepare fields for the future harvest after the picking of windrows is an important feature of this harvesting campaign. Taking into consideration the favorable conditions, afterharvest sowings of fodder crops and millet are being carried out everywhere. A total of 12 powerful tractors are concentrated on the Kolkhoz imeni Kirov in Chaplinskiy Rayon in the soil preparation department. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Jul 82 p 1/ 11,439

RIPENING OF WINTER BARLEY--Simferopol', 26 Jul--Winter barley has ripened on fields in the Crimea. A total of 350 combines operate in Krasnogvardeyskiy Rayon. Barley has already been put into windrows on 7,000 hectares. Machine operators in Belogorskiy Rayon have joined the harvesting campaign as a team. In the Crimea winter barley has been almost fully put into windrows. They are being threshed everywhere. /By A. Soldatskiy/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 27 Jun 82 p 1/ 11,439

HARVESTING-TRANSPORT DETACHMENTS--Krymskaya Oblast--Every reaping season has its characteristics. There were hot days and dry winds blew in the Crimea for a long time, but, when the time of mowing and threshing of grain crops arrived, it began raining. It is necessary to select individual tracts of land for harvesting, to transfer the maximum amount of equipment there and to immediately clear fields of straw. A total of 369 harvesting-transport detachments now operate in the oblast. Machine operators work in a highly productive manner, trying to gather 30 quintals of grain per hectare. The first results of the reaping campaign indicate that this goal can be achieved. /By A. Soldatskiy, correspondent of SEL'SKAYA ZHIZN' / /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 17 Jul 82 p 1/ 11,439

GRAIN PROCUREMENT--Zaporozhskaya Oblast--Here it is, the grain of this harvest. In the rates of reaping and grain procurement the people of Orekhovski Rayon are now among the best in the oblast. All 24 kolkhozes and sovkhozes have decided to fulfill the total grain procurement plan, not waiting for the ripening of corn, with the grain of the spike group. This means that in a few days it is necessary to transport 77,000 tons of grain. About 50,000 out of what has been planned are already at the receiving center. The daily shipment has reached 5,000 tons. For many years the rayon was among the lagging ones and often did not fulfill the grain procurement plan. Now it is another matter. What are the reasons for the changes that are taking place? I. I. Gordik, secretary of the rayon party committee, answers this question as follows: "High agrotechnology and the increased responsibility for affairs in agriculture contributed to the good harvest. Our patrons from Ordzhonikidzevskiy Rayon in Zaporozh'ye sent 16 wheel tractors, 32 trucks and 82 people--fitters, drivers and tractor operators--for the harvest. Those that put the blame on the weather lose grain. One must work and recapture every minute from the bad weather. The effort will certainly result in tons of grain." The unharvested strip of the cultivated field in Zaporozhskaya Oblast is decreasing and the inflow of grain to elevators and receiving centers is increasing. /By N. Ivanchenko, correspondent of SEL'SKAYA ZHIZN' / /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 31 Jul 82 p 1/ 11,439

THRESHING OF GRAIN CROPS--Odessa, 25 Jun--Machine operators in Kiliyskiy, Izmail'skiy, Tatarbunarskiy and Reniyskiy Rayons have moved harvesting equipment to winter barley fields. In Kiliyskiy Rayon field work is now carried out in an overall manner. Following combines fields are cleared of straw and prepared for sowing. Farmers have undertaken the obligation to thresh 34.2 quintals of grain crops per hectare. /By A. Soldatskiy/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 26 Jun 82 p 1/ 11,439

EARLY GRAIN CROPS--Odessa, 28 Jun--The harvesting of early grain and pulse crops has begun on farms in the southern zone of Prichernomor'ye. The first trucks with the grain of the new harvest have been dispatched to threshing floors and elevators.

More than 500 complexes and detachments, which will operate according to the Ipato-vo method, have been formed in the oblast. Grain growers have undertaken the obligation to cope with the harvest within the optimum time--12 to 15 work days. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 29 Jun 82 p 1/ 11,439

STRONG WHEAT VARIETIES--Odessa, 13 Jul--Green light is given to trucks with red flags on their sides on the grain routes of Prichernomor'ye. They carry the grain of strong and valuable wheat varieties, on whose transportation from threshing floors to elevators the oblast's farms have embarked. Odesskaya Oblast is the largest supplier of strong grain in the Ukraine. The main tracts of land here have been allocated for varieties capable of producing grain with an increased content of gluten--Erythrospermum-127, Odesskaya-51 and Odesskaya polukarlikovaya /semi-dwarf/. This year the oblast's farmers are planning to sell no less than 65,000 tons of strong and 260,000 tons of valuable wheat--more than last year--to the state. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 14 Jul 82 p 1/ 11,439

POURING RAIN--Odessa--An efficient organization of the labor of all the links of the harvesting conveyer helped farmers in Reniyskiy Rayon to cope with the reaping campaign in only 12 work days. Yesterday they were the first in Prichernomor'ye to complete the mowing and threshing of grain crops almost a week earlier than last year. The cultivated winter field occupied about 13,000 hectares of arable land in the rayon. Reaping was hampered by pouring rain. Under existing weather conditions machine operators had to revise the schedules of the harvesting campaign and to work out a tactic for every day. /Text/ /Moscow GUDOK in Russian 25 Jul 82 p 1/ 11,439

GRAIN LOSSES ON ROADS--Odesskaya Oblast--The reaping season has arrived in the Odessa steppe at the usual time. But it has its characteristics. The point is that peas are always the first to ripen here. Usually, combine operators set up harvesting equipment on their fields and gradually join in the rhythm of the reaping campaign. Peas occupy almost 87,000 hectares of arable land in the oblast. Now, however, they are still green, while winter barley is ripe. The grain reaping campaign in the oblast has begun in the Dunay Steppe. Machine operators in Kiliyskiy, Izmail'skiy and other rayons have joined the reaping campaign as a team. More northern rayons--Kominternovskiy, Belyayevskiy, Berezovskiy and others--have also joined it. The agronomic service of farms closely follows the ripening of grain crops and peas on every field. As soon as grain is ripe, a complex joins the operation. The field is plowed in 1 to 3 days. Fodder crops or millet are sown for the second time on many harvested tracts of land. Machine operators in Tatarbunarskiy Rayon are working well. However, it is difficult to imagine how it is possible not to lose grain on the roads leading from the Kolkhoz imeni Suvorov, the Pogranichnik Kolkhoz and others. Highway workers have poorly leveled out routes. Spilled grain has already been found on them. No seals or canopies on vehicle bodies help. Farmers in Odesskaya Oblast now have to gather early grain crops on more than 900,000 hectares. About 6,000 combines unified into 500 overall harvesting-transport detachments have joined this operation. All units have been staffed with two machine operators. City enterprises have provided assistance. All this will make it possible to complete the reaping campaign in 12 to 14 days. /By A. Soldatskiy, correspondent of SEL'SKAYA ZHIZN'/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 3 Jul 82 p 1/ 11,439

HARVESTING OF PEAS, BARLEY--Kiev--Following grain growers in the south farmers in Kirovogradskaya Oblast and Zakarpat'ye have begun the harvesting campaign. Peas, barley and in a number of rayons winter wheat are put into windrows. Early grain crops have been mowed on 600,000 hectares. Grain crops have been threshed on almost one-half of the areas. /Text/ /Moscow TRUD in Russian 8 Jun 82 p 1/ 11,439

COMBINE MAINTENANCE SERVICES--L'vov, 1 Jul--The reaping season is approaching. Workers in the oblast have prepared harvesting equipment. All grain combines and reapers have been tested on farms in Brodovskiy, Radekhovskiy, Starosamborskiy and a number of other rayons. Combine maintenance services have been organized and a stock of units and parts has been established everywhere. Rural machine operators are once again checking the harvesting equipment assigned to them. /By M. Kushnir/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 2 Jul 82 p 1/ 11,439

SWATH METHOD OF HARVESTING--Kiev, 17 Jul--The front of the harvesting campaign in the Ukraine is expanding every day. Farmers in the republic's central oblasts have moved harvesting units to the cultivated fields that have ripened. Every day machine operators are gathering the harvest from an area of 100,000 hectares, selecting harvesting technology with due regard for the weather and state of crops. Many farms give preference to the swath method, which increases grain output. In the republic's southern zone, where the reaping campaign is in full swing, many combine operators are threshing 75 to 100 tons of grain every day. Machine operators employed in mowing are also overfulfilling the assignments significantly. Most of the republic's farms have already joined the harvesting campaign. Grain from the second million hectares has begun to arrive at threshing floors and elevators. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 18 Jul 82 p 1/ 11,439

DAMAGE FROM HURRICANE--Zakarpatskaya Oblast--Heavy torrential rain and gusty winds lasted only 2½ hours in Zakarpatskaya Oblast. However, the damage they caused was tremendous. Orchards, vineyards and winter wheat fields suffered. Several kilometers of dirt roads were washed away and a number of bridges were demolished. Tyachevskiy Rayon was in the center of the element. The day before the radio announced that a storm was expected. Suddenly at night it became so bright as though hundreds of powerful projectors were connected at the same time. Lightning lined the sky with curved zigzags. They flashed every 3 or 4 minutes and then it thundered deafeningly. In the morning village residents did not recognize their streets. Roofs were torn off from some homes and trees were scattered on the ground. There was no electric power at homes, enterprises and public centers. Communication was disrupted. But help came from Uzhgorod and other adjacent cities. Restoration brigades, detachments of electricians and construction subdivisions arrived. First of all, they delivered the necessary products for the population, quickly organized electric supply, restored communication and cleaned streets and roads. The wreckage at enterprises, kolkhozes and sovkhoses was removed promptly. Party, Soviet and trade-union bodies in the oblast and rayons are doing their utmost to quickly eliminate the traces of the natural calamity. /By G. Klyucherov/ /Text/ /Moscow TRUD in Russian 6 Jul 82 p 4/ 11,439

HARVESTING CAMPAIGN IN UKRAINE--Despite the whims of the weather, the areas of grain crops on the republic's kolkhozes and sovkhoses correspond to the planned areas. Crops are basically in a good and satisfactory state, although in a number

of rayons showers with hail did considerable damage to them. The main task of the day is to harvest grain in an organized manner and to avoid losses of the grown harvest. We pay much attention to problems of determination of the optimum dates for the beginning of mowing of grain crops and of a scientifically substantiated combination of swath harvesting with direct combining. Fields for the top-priority windrowing of grain crops have already been determined on farms. Specialists of state seed inspectorates and oblast agricultural experimental stations constantly make observations and determine the moisture of standing grain. We consider the period when grain moisture is 40 percent, that is, when the influx of plastic substances stops, the optimum period for the beginning of swath harvesting. During this period all grain combines and trailed reapers mow grain crops, primarily lodged ones, with undersown perennial grass and increased weediness. When windrows dry up to the basic grain moisture, all combines change over to threshing and, if necessary, trailed reapers continue the mowing of areas intended for swath harvesting. Every day the front of the reaping campaign is expanding ever more widely. The republic's farmers inspired by the decisions of the May Plenum of the CPSU Central Committee are fully resolved to harvest early grain crops in 12 to 15 work days, to give as much grain as possible to the state and thereby to make a weighty contribution to the fulfillment of the USSR Food Program. /By M. Khorunzhiy, Ukrainian SSR minister of agriculture/ /Excerpts/ /Moscow SEL'SKAYA ZHIZN' in Russian 15 Jul 82 p 1/ 11,439

CSO: 1824/458

LIVESTOCK FEED PROCUREMENT

LIVESTOCK FEED CROP SITUATION IN UKRAINE

Kiev SIL'S'KI VISTI in Ukrainian 5 Aug 82 p 1

[Text] Farmers in all oblasts of the republic are busy with harvesting now. They are putting all their efforts into harvesting the crops quickly and without losses. On most farms the feed procurement pace has not been lowered. A strong feed basis is the chief condition for further production growth and in the sale of livestock raising output to the state.

As of 2 August the first mowing of sown and natural grasses was finished in most oblasts. Kolkhozes and sovkhozes are creating forage supplies from second mowing of perennial grasses and from post-mowing crops of annual feed mixtures.

In the last week 233,000 tons hay, 376,000 tons haylage, 451,000 tons silage mass, and 58,000 tons grass meal were accumulated in kolkhozes and state farms.

Voroshilovgradskaya Oblast is first in the socialist competition with 113 percent fulfillment of planned hay procurement, 103 percent haylage, also 41,000 tons of grass meal and other dehydrated feed were prepared or 69 percent of what was planned.

Farms in Volynskaya, Dnepropetrovskaya, Donetskaya, Zaporozhskaya, Kirovogradskaya, Krymskaya and Odesskaya Oblasts are also accumulating hay successfully, they have reached 72-99 percent of their plan.

In spite of unfavorable weather conditions, forage supplies are growing each day at kolkhozes imeni XXII Partz'yizd in Pyatykhatskiy Rayon, Dnepropetrovskaya Oblast (kolkhoz manager L. M. Knysh) and imeni the newspaper PRAVDA in Sinelnikivskiy Rayon in the same oblast (kolkhoz manager M. I. Shevchenko). Here they have acquired 1.3 to 1.7 tons hay for each cow, and 108-124 percent of haylage accumulation plan is fulfilled. More than 2 tons hay per cow have been procured by workers at the kolkhoz "Ukrayina" in Kiliyskiy Rayon, Odesskaya Oblast. Feed production workers on these farms achieved success thanks to a precise work organization plan and an efficient maneuvering of harvesting technology.

Everyone is aware of the importance of each day in hay mowing. Yet, there are managers who waste better dates for mowing grasses, and accept the losses in feed nutritious value. There are still a lot of unmowed feed crops in kolkhozes

and sovkhozes of Vinnitskaya, Zakarpatskaya, Ivano-Frankovskaya, Khmel'nitskaya and Chernovitskaya Oblasts. Therefore, farms in these oblasts have acquired only 27-49 percent of their planned hay.

The state of feed procurement in Kievskaya Oblast is also disturbing where a first mowing of perennial and natural grasses still has to be completed over 15 percent of the area. There was also poor organization here in mowing grasses from other than arable land, forests and marshes. Now their hay supplies are two times less than last year and there is 20 percent less grass meal than at this time last year.

Last year's wintering experience shows that on a number of farms where cattle rations did not contain enough hay the milk yield and young stock weight gain not only did not rise but even decreased.

There is a lack of appropriate concern for utilizing green mass and feed supply establishment for the winter on the part of some kolkhoz and sovkhoz managers in Zhitomirskaya Oblast where more than 100,000 hectares or a fourth of the area set aside for the procurement of hay, haylage, silage and grass meal were used for cattle pasturage.

Assistant kolkhoz and sovkhoz managers and farm specialists should utilize all measures to accumulate a feed mass for following mowings, stimulating grass regrowth by top dressing with fertilizer, especially nitrogen. It is important to obtain a second hay harvest from most of the hay mowing area to supplement hay supplies. We have to guard against unsystematic cattle pasturage on meadows and pastures.

The experience of some farms confirms that green feed from crop pastures, balanced as to sugar, protein and carotene, is the cheapest feed, from which milk and meat may be obtained almost without concentrates. At the kolkhoz imeni Zhdanov in Korsun-Shevchenkivskiy Rayon, Cherkasskaya Oblast, 48 quintals of feed units were obtained from each of 120 hectares of such pastures in two pasturing cycles. Two hundred cows are pastured here providing a high milk yield. At the kolkhoz, "Zhovtneva Peremoha" in Vinogradivskiy Rayon, Zakarpatskaya Oblast, 193 quintals of green mass are obtained from each of 210 hectares of crop pastures. From a feed hectare of these pastures 50 quintals of milk and 7 quintals of meat were already produced. Net cost of 1 quintal of milk equals 11 rubles and 68 kopeks.

Yet, in a number of oblasts especially Volynskaya, Zhitomirskaya, Ivano-Frankovskaya and Chernigovskaya there is insufficient effort towards establishing crop pastures and their thorough improvement.

Recently feed production workers increased the pace of haylage procurement. Farms in Dnepropetrovskaya, Sumskaya and Khersonskaya Oblasts fulfilled their plans 102-116 percent. Krymskaya, Nikolaevskaya and Turnopol'skaya Oblasts are close to fulfilling their plans. Yet, kolkhozes and sovkhozes in Vinnitskaya, Zhitomirskaya, Ivano-Frankovskaya and Lvovskaya Oblasts accumulated only 26-45 percent of the planned haylage.

Many farms where silage crops are not ready are expanding ensilage of natural grasses widely. In Ivano-Frankovskaya, Krymskaya, Poltavskaya, Lvovskaya and Ternopol'skaya Oblasts 18-22 percent of planned silage mass has already been stored.

From the first days of the season up to now the pace of preparing grass meal and other dehydrated feed has not been let up in Dnepropetrovsk, Rovno and Kharkov areas with a 79-97 percent plan fulfillment. Yet, on many farms in Zaporozhskaya, Odesskaya and Chernovitskaya Oblasts drying unit operation has not been appropriately organized, many of them stand idle with the result that only 24-35 percent of the planned grass meal production has thus far been accomplished.

Straw provides specific weight in coarse feed structure. Considerable attention should be given to its timely and high quality procurement. In kolkhozes and sovkhoses of Zaporozhskaya, Krymskaya, Rovenskaya and Ternopol'skaya Oblasts straw has been stacked over 81-88 percent of the threshed grain crop area. In Chernigovskaya, Kharkovskaya, Poltavskaya and Kirovogradskaya Oblasts it remains standing over more than a third of the area, losing its nutritious value.

It is very important to utilize each fair day and each hour for increasing feed supplies without any work postponement, putting all available methods to work.

As of 2 August 1982 planned feed procurement fulfillment in kolkhozes, sovkhoses, interfarm enterprises and other state farms may be described by the indices given below (percentage of plan fulfillment).

Procured

<u>Oblasts</u>	<u>Hay</u>	<u>Haylage</u>	<u>Grass meal produced</u>	<u>Straw stacked (of threshed)</u>
Vinnitskaya	37	26	48	67
Volynskaya	84	74	40	75
Voroshilovgradskaya	113	103	69	70
Dnepropetrovskaya	72	116	97	74
Donetskaya	87	78	38	81
Zhitomirskaya	40	45	35	74
Zakarpatskaya	49	70	50	77
Zaporozhskaya	82	76	29	87
Ivano-Frankovskaya	29	43	34	73
Kievskaya	39	77	50	85
Kirovogradskaya	88	87	36	68
Krymskaya	90	92	38	88
Lvovskaya	59	44	60	73
Nikolaevskaya	53	92	43	83
Odesskaya	75	64	24	83
Poltavskaya	55	73	38	63
Rovenskaya	68	72	93	81
Sumskaya	48	113	63	52
Ternopol'skaya	56	90	46	81

<u>Oblasts</u>	<u>Hay</u>	<u>Haylage</u>	<u>Grass meal produced</u>	<u>Straw stacked (of threshed)</u>
Kharkovskaya	68	102	79	61
Khersonskaya	54	81	38	77
Khmel'nitskaya	27	58	53	77
Cherkasskaya	49	76	44	71
Chernovitskaya	28	47	35	67
Chernigovskaya	43	75	42	48

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CSO: 1811/62

LIVESTOCK FEED PROCUREMENT

LOW FEED QUALITY INDICATED IN BELORUSSIA

Minsk SEL'SKAYA GAZETA in Russian 4 Aug 82 p 1

/Article: "What Is the Quality of Your Forage?"

/Text/ The results of laboratory analyses have shown that many of the republic's kolkhozes and sovkhoses are procuring low quality feed. Approximately 4 percent is non-grade hay, haylage or silage. The procurements of low grade grass meal of the 4th and 5th grades and also non-grade material amount to approximately 40 percent. As a result, the farms lost more than 91,000 tons of feed units and approximately 9,500 tons of protein, amounts which are equivalent to the supplies required for obtaining 75,000 tons of milk.

Proper importance is not being attached in all areas to studying the quality of the feed in a timely manner. Quite often it is procured on a "blind" basis. Thus only one half of the supplies of hay and grass meal were studied in Brest, Vitebsk, Gomel' and Mogilev Oblasts. In particular, an analysis of haylage bulk has been organized in a very poor manner in Gomel' and Vitebsk Oblasts and silage -- in Mogilev Oblast.

Feed checks have been organized only in rayons in Minskaya Oblast. Machines from rayplemstantsiy /rayon breeding stations/ and other organizations have been assigned here to each of 22 laboratories. Precisely according to schedule, the agricultural chemists and laboratory workers visit the farms for the purpose of obtaining samples. They make their rounds once every two days. The work is carried out without delay in Myadel'skiy, Nesvizhskiy and Lyubanskiy Rayons and on the following day the kolkhozes and sovkhoses are informed regarding the results of the analyses, with certificates of quality subsequently being issued to the farms. The feed production specialists and farm leaders keep themselves informed regarding these results and this brings about tactical changes in the organization of the work. For example, if the hay turns out to have a raised moisture content then it is dried out and if a similar diagnosis is attached to haylage bulk then preservatives are added. In other words, the necessary measures are undertaken to regulate the feed procurement technology so as to ensure the maximum retention of nutrients. Thus it is by no means an accident that 1st and 2d grade feed is for the most part being obtained in these rayons.

Extremely poor quality feed is being obtained in those areas where a quality control system is not being employed. For example, 18 percent of the hay procured in Rogachevskiy Rayon is of non-grade quality, more than 90 percent of the grass

Information on Quality of Feed Procured at Kolkhozes and Sovkhozes
in the BSSR by 30 July 1982 (in percentages)

Oblasts	Hay			Haylage bulk			Silage Bulk			Grass Meal		
	Checked		Applies to grade	Checked		Applies to grade	Checked		Applies to grade	Checked		Applies to grade
	I-II	Non- graded		I-II	Non- graded		I-II	Non- graded		I-II	Non- graded	
Brest	76.2	75.5	1.8	83.2	83.8	0.5	84.3	85.5	0.8	51.6	28.3	0.7
Vitebsk	61.4	72.2	4.7	78.9	65.4	5.5	77.5	76.4	4.6	50.7	30.3	6.3
Gomel'	80.6	78.5	4.5	73.2	70.5	6.0	96.6	74.2	5.8	63.0	21.4	8.3
Grodno	77.8	67.3	5.1	74.1	64.1	5.1	72.5	75.0	2.9	70.5	50.0	1.9
Minsk	96.3	83.4	0.8	95.4	78.9	0.4	89.6	91.7	0.4	89.0	46.3	1.3
Mogilev	64.4	74.0	4.2	79.9	66.8	4.6	58.1	76.9	5.8	61.8	46.8	3.2

meal was of 5th grade or non-grade quality and approximately 35 percent of the haylage bulk and 60 percent of the silage bulk were unsuitable for feeding to the animals.

A very important stage in feed production is that of storage of the feed. Whether or not full use will be made in the winter rations of the supplies of protein and other nutrients obtained is dependent upon the proper observance of the feed storage technology. A check carried out on feed storage operations on the farms has revealed that at times 1st grade feed is transformed into non-graded and unsuitable for feeding to the animals for one reason alone -- irresponsible attitude towards the storage technology and a lack of attention with regard to studying the results of analyses.

Here is an example of mismanagement. In the Atalez' Brigade of the Krasnyy Partizan Kolkhoz in Stolbtsovskiy Rayon, 30 tons of hay turned out to have a raised moisture content. The rayon feed laboratory decided that the hay had to be dried out if good quality forage was to be obtained. However the hay was placed in a roofed storehouse, the fans were not switched on and shortly thereafter the temperature reached 28°. Thus the hay became over-heated and unsuitable for use. At the Kolkhoz imeni Lenin in the village of Ivanichi in Chervenskiy Rayon, only 360 tons of hay were added to a 1,000 ton capacity trench over a period of more than 2 weeks. The bulk was tamped down using a Belarus' tractor. The temperature of the haylage is higher than 60 degrees. It is already clear: such haylage is not suitable for feeding to the animals. Is it possible that they are unaware here that good quality feed can only be obtained by filling the trench within 3-4 days, tamping it down well and then hermetically sealing it with a cover?

Individual farm leaders are acting in an irresponsible manner in the matter of grass meal sales to the state. Quite often there are no markings on the bags and thus no information is provided as to when the meal was produced. Nor is a certificate of quality always provided. This applies to the Sovkhoz imeni Dimitrov in Gorodokskiy Rayon, the Podberes'ye Training Farm in Vitebskiy Rayon, the Krynki Sovkhoz in Lioznenskiy Rayon, the Pobeda Kolkhoz in Grodnenskiy Rayon, the Zarya Kolkhoz and Oktyabr'skiy Sovkhoz in Kobrinskiy

Rayon, the Rassvet Kolkhoz in Zhabinkovskiy Rayons and the imeni Il'ich and imeni Frunze Kolkhozes in Beshenkovichskiy Rayon.

The second cutting of grasses -- a highly nutritious feed raw material -- is being obtained at the present time. So as not to repeat the mistakes made during the first cutting, the mowing of the grasses must be accelerated, the hay must be prepared in a timely manner, the haylage and silage trenches must be filled as rapidly as possible, the feed must not be allowed to spoil, the forage must be stored in conformity with the established rules and the grass meal must be turned over to the mixed feed plants only in sewn bags that are properly marked and have quality certificates.

All of the feed laboratories are obligated to exercise operational control over the quality of the forage supplies and to inform the farms on a regular basis regarding the results of studies, after organizing the timely selection of samples and delivering them to the laboratories. The time is already at hand for studying the hay, grass meal and also silage and haylage, since 4 weeks have elapsed since they were placed in storage and a complete zootechnical analysis should be carried out.

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CSO: 1824/476

LIVESTOCK

LIVESTOCK COMPLEX TOTALS FOR FIRST HALF 1982

Moscow TRUD in Russian 6 Aug 82 p 1

/Article by A. Deryabin, chief of Glavzhivprom of USSR Ministry of Agriculture:
"Using a Plant Technology"

/Text On the whole, the complexes competing for the production of pork and beef overfulfilled their plans and the raised socialist obligations they undertook in connection with the production and sale of meat to the state. The enterprises for the production of pork improved the productivity and maintenance of their animals and they sold 5,400 tons of pork over and above the established plan. The beef production complexes sold 3,300 tons of meat over and above the plan.

The average daily weight increases for the raising and fattening of young large-horned cattle stock reached 964 grams and hogs undergoing fattening -- 621 grams. All of the complexes are selling animals which for the most part are in a high or average state of nourishment.

The collectives of such collectives as Industrial'nyy in Krasnodar Kray, Luzinskiy in Omsk Oblast, Il'inogorskiy in Gor'kiy Oblast, Krasnogorskiy in Chelyabinsk Oblast and imeni 60-Letiya BSSR in Minsk Oblast are in the front ranks of the socialist competition to increase the production and sale of pork to the state and to raise the efficiency and quality of the work.

During the first 6 months, the collective at the Industrial'nyy complex sold 58,900 hogs to the state at an average weight of 123 kilograms, it fulfilled its plan for the sale of meat by 125 percent and it obtained the highest average daily weight increases in its animals during fattening -- 672 grams and the lowest production cost per quintal of weight increase -- 84.7 rubles.

The Luzinskiy complex fulfilled its plan for the sale of meat -- it sold 973 tons of pork over and above the plan and it lowered its output production costs by 3.5 percent.

The Il'inogorskiy Sovkhoz-Combine, which sold 16,200 tons of meat to the state during the first 6 months, is operating in a stable manner. Compared to this same period for last year, the Krasnogorskiy complex increased its gross weight increase by 1,555 tons.

A high average daily weight increase during fattening (670 grams) was achieved at the Complex imeni 60-Letiya BSSR. It sold 501 tons of pork to the state over and

Livestock Complexes	Meat sales to state in live (tons)	Average daily weight increase during fattening (grams)	Production cost per quintal of weight increase, (rubles)	Labor expenditures per quintal of weight increase (in man-hours)	Feed consumption per quintal of weight increase (in quintals of feed units)
For Pork Production					
Il'inogorskiy No 1	8,801	630	91.87	2.4	4.5
Il'inogorskiy No 2	7,412	630	86.50	2.5	4.2
Kuznetsovskiy	5,717	590	97.31	3.0	4.9
Kalityanskiy	6,665	611	93.45	2.5	4.8
Gubkinskiy No 1	3,580	566	106.39	4.8	4.7
Vostochnyy	7,782	631	94.0	2.0	4.5
Luzinskiy	7,875	650	81.0	2.3	4.5
Industrial'nyy	7,244	672	84.71	2.3	4.1
Krasnogorskiy (two complexes)	13,267	620	92.8	2.8	4.3
Chistogorskiy	5,375	600	101.75	3.0	5.0
Gornoural'skiy	6,114	582	108.25	3.0	5.3
Permskiy	7,316	618	98.7	2.8	4.7
Imeni 60-Letiya BSSR	7,001	670	103.59	2.6	4.3
Alekseyevskiy	6,365	592	104.38	2.8	4.9
For Beef Production					
Druzhba	2,479	1,047	115.70	2.0	5.3
Pashskiy No 1	2,483	961	121.64	2.8	6.4
Pashskiy No 2	2,459	1,002	122.23	2.7	6.3
Yumatovskiy	2,829	1,027	104.50	2.4	5.3
Voronovo	2,290	955	117.46	3.8	5.8
Mir	2,568	1,100	98.76	2.3	5.4
Donskoy	2,056	930	129.60	3.2	6.7
Valuyskiy	2,547	999	115.16	4.2	5.7
Dzhetygenskiy	2,184	940	121.79	3.3	6.1
Imeni 50-Letiya VLKSM	2,590	780	160.89	5.7	6.9
Imeni XXV S'yezda KPSS	2,977	894	126.48	3.6	5.8
Bratskaya fattening site	3,965	526	292.86	2.51	12.55
Proletarskaya fattening site	3,690	725	255.10	1.75	10.02
Veselovskaya fattening site	3,567	545	252.82	3.5	12.2
Armavirskaya fattening site	4,192	647	186.45	3.0	11.2

above the plan. Such complexes as Kalityanskiy in Kiev Oblast, Alekseyevskiy in Kuybyshev Oblast, Permskiy in Perm Oblast and Vostochnyy in Leningrad Oblast also coped with their production programs and sold products to the state over and above their plans.

High indicators in the socialist competition were achieved by the collectives of subh beef production collectives as Yumatovskiy in the Bashkir ASSR, Mir in

Brest Oblast and Pashskiy No 2 in Leningrad Oblast. The collective at the Yumatovskiy complex sold 2,829 tons (in live weight) of beef to the state and fulfilled its plan by 124.1 percent.

The Mir complex sold 2,568 tons (in live weight) of beef to the state and fulfilled its plan by 119.7 percent. The average weight of one head sold to the state increased by 17 percent and reached 491 kilograms. Here the highest average daily weight increases in the animals during raising and fattening was 1,100 grams.

The Pashskiy No 2 complex over-fulfilled its plans and the levels achieved for the production and sale of meat to the state. The average daily weight increase was raised by 30 grams and labor expenditures and production costs were lowered. Such complexes as Valuyskiy in Belgorod Oblast, Voronovo in Moscow Oblast, imeni XXV S"yezda KPSS in Kiev Oblast and imeni 50-Letiya VLKSM in Tashkent Oblast exceeded their plans and the levels achieved last year for meat sales to the state.

In taking note of the fine work performed by a number of complexes, it bears mentioning that individual enterprises did not make full use of the available production reserves and potential. Thus, in connection with a reduction in the number of animals sold and in the established delivery weight for the animals, the Bubkinskiy complex in Belgorod Oblast fell short in its deliveries of pork to the state by 336 tons. This enterprise is failing to observe the production technology and it is tolerating a raised culling out of animals.

At the Bratskaya, Proletarskaya and Veselovskaya fattening sites in Rostov Oblast and the Armavirskaya site in Krasnodar Kray, the average daily weight increase in the animals during fattening has decreased and the production cost per unit of output has increased. This has occurred owing to the fact that the farms lack internally produced feed.

Further improvements in the productivity of the animals and an intensification in the rates for the production and sale of meat to the state at livestock production complexes will be determined to a decisive degree by the quantities and quality of the feed procured. Thus the leaders, specialists and all farm workers must utilize all available potential and reserves for increasing the procurements and raising the quality of the feed.

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LIVESTOCK

PIG FARMING ON PRIVATE PLOTS, SUBSIDIARY ENTERPRISES

Moscow SVINOVODSTVO in Russian No 7, Jul 82 pp 2-4

/Article: "Great Tasks of Pig Breeders"/

/Excerpts/ The 24 May 1982 Plenum of the Central Committee of the Communist Party of the Soviet Union listened to and discussed the report by the General Secretary of the CC CPSU and Chairman of the USSR Supreme Soviet Comrade L.I. Brezhnev entitled the "Food Program for the Period Up To 1990 and Measures for Implementing It." This program was developed in conformity with decisions handed down during the 26th CPSU Congress, upon the initiative and with the direct participation of Comrade L.I. Brezhnev.

The following statement is contained in the food program: "In addition to the organization of highly intensive pig farming operations at industrial farms and complexes, greater use must be made of the potential for increasing the production of pork on the farms of non-specialized kolkhozes and sovkhoses, on the subsidiary farms of enterprises and organizations and on the private plots of citizens. At each kolkhoz and sovkhos where there are suitable conditions, there should be pig breeding farms for satisfying the requirements of the farms for meat and also for selling young pigs to the population."

Experience has shown that a true requirement exists for each farm having a pig raising facility. It is a profitable arrangement. During the past few years, many non-specialized farms have organized their own pig raising facilities. For example, let us take Shumyachskiy Rayon in Smolensk Oblast. Here, over the past 3 years, a great amount of work has been carried out in connection with organizing small pig raising facilities on farms in the rayon. Such facilities already exist at the Nadeykovichskiy, Krivolesskiy and Zales'ye Sovkhoses and at the 1 Maya, imeni Lenin and other kolkhozes. For example, an old calfhose at the 1 Maya Kolkhoz which was ready for dismantling was set aside for use as a pigsty. It was repaired and sows and boars were purchased. By the following year, this facility had already become crowded. Following a brief interval of time, this small pig raising facility began producing products. It is already supplying meat for the kindergarten, a dining hall and also for the kolkhoz members. It has even commenced selling young pigs to the population.

At one time, under the guise of specialization, many farms eliminated their pig raising facilities. The Fayzabad Sovkhos in Fayzabadskiy Rayon in the Tajik SSR not only retained but in fact increased the capability of its pig farm. This pig farm presently has more than 4,000 head.

The subsidiary farms of enterprises and organizations must make their own contribution towards increasing the country's meat resources. As is known, the number of such farms has increased in recent years.

More than 10 years have passed since the organization of a subsidiary farm for the fattening of hogs based upon the use of food scraps obtained from the Vinnitsa Oblast Trade Administration. At the present time, this large Yakushenetskiy fattening sovkhoz is fattening approximately 20,000 hogs annually. It bears mentioning that the chief of the oblast trade administration, V.I. Rudenko, invested a great amount of labor in the establishment and development of this modern pig farming complex.

Only 2 years have passed since the subsidiary farm of the Argun municipal consumer society in the Checheno-Ingush ASSR was organized and in 1981 it fattened 333 hogs. This year this figure will be doubled. The reproduction of young stock has already been organized. It should be emphasized that pork is produced here based mainly upon the use of food scraps. Extensive use is also being made of waste products obtained from the food industry.

The enterprises and organizations in Volgograd Oblast already have more than 193 subsidiary farms. In addition to large-horned cattle, these facilities are also fattening more than 28,000 hogs. Last year the manual and office workers obtained 5,248 tons of meat from the subsidiary farms. Interesting experience has been accumulated in the oblast in the organization of subsidiary farms in the city of Volzhskiy. Twenty enterprises here have subsidiary farms. They are already furnishing large quantities of cheap pork and other products. During the next few years, the plans call for the fattening of hogs to be increased to 22,000 head annually (for more details on the operational experience of subsidiary farms in the city of Volzhskiy, read the article by the 1st deputy chairman of the municipal soviet V. Smorodinskiy, in the journal SVINOVODSTVO /Pig Farming/, Issue No 1 for 1982).

Many examples could be cited illustrating the fine organization of subsidiary farms for the fattening of hogs, based upon the use of food scraps and other waste products. This would include enterprises and organizations in the cities of Ul'yanovsk, Kazan', Leningrad, Donetsk and others.

The private plots of the population must also make a contribution towards carrying out the food program.

At the present time, many rural residents are maintaining pigs and other livestock on their private plots and cultivating various crops. Each year the private sector produces millions of tons of various types of agricultural products. Many surplus amounts of these products are sold to the state. The valuable experience accumulated in the successful development of cooperation between farms and the population in the raising and fattening of hogs under mutually advantageous conditions is being disseminated on a more extensive scale. This work has been organized very well in many rayons in Voronezh, Grodno, Odessa and other oblasts. For example, in Abashskiy Rayon in the Georgian SSR, each resident is presented with an opportunity for making his own contribution towards implementation of the food program. Here the kolkhozes and sovkhozes supply young pigs for fattening to all those desiring them, they sell feed at stable prices to the population, they

provide veterinary services and they allocate materials for the construction of fattening stations for the private plots. The farms sell young pigs weighing 12 kilograms for 30 rubles; 3.52 quintals of mixed feed and 2 quintals of corn expended per 100 kilograms of weight increase cost 63.4 and 28 rubles respectively. Two hundred and twenty four rubles are paid out for each quintal of pork delivered. As a result, the profit realized from the fattening of a gilt amounts to approximately 103 rubles. Thus it is apparent that cooperation is profitable.

The fattening of hogs is being carried out on a mutually advantageous basis at many kolkhozes and sovkhoses in Tambovskiy Rayon in Amur Oblast, Chernyshkovskiy Rayon in Volgograd Oblast, Vileyskiy Rayon in Minsk Oblast and so forth.

In recent years, all residents of villages and settlements have begun to maintain young pigs and other livestock. Many kolkhozes and sovkhoses are selling young stock to them. The raising and fattening of young pigs to satisfy internal requirements on the private plots are also promoting an increase in the country's meat resources. Many surplus amounts of meat are being sold to the state.

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AGRO-ECONOMICS AND ORGANIZATION

UKRAINIAN AGROINDUSTRIAL, SCIENTIFIC CONFERENCES

Investment, Production Potential Discussed

Kiev PRAVDA UKRAINY in Russian 24 Jul 82 p 2

/Report on conference: "Dynamic Development for the Agroindustrial Complex"/

/Text/ A meeting of the Commission on Problems of the Agroindustrial Complex of the Presidium of the Ukrainian SSR Council of Ministers was held in Kiev on 21 July. The participants in it--directors of ministries and departments and executives of the Central Committee of the Communist Party of the Ukraine and of the UkSSR Council of Ministers--discussed a number of problems connected with the utilization of capital investments, commissioning of capacities by the subdivisions of the agroindustrial complex and deliveries of equipment, spare parts, fuels, lubricants and other materials to the republic's agriculture.

V. P. Popov, first deputy chairman of the UkSSR Gosplan, V. K. Solomakha, UkSSR minister of meat and dairy industry and V. L. Filonenko, chairman of the UkSSR State Committee for Supply of Production Equipment for Agriculture, made reports.

It was noted at the meeting that measures to ensure the construction of projects and to strengthen the material and technical base of sectors of the agroindustrial complex were implemented in agriculture, food, hulling-milling and mixed feed industries and trade during the first half-year. A total of 1,189 million rubles of state capital investments were utilized and construction and installation work worth 571 million rubles was carried out. New production capacities for hog fattening, poultry factories, plants for meat processing, storage facilities for vegetables and potatoes, warehouses for mineral fertilizers and toxic chemicals, silage and haylage installations and repair enterprises were put into operation. Additional tracts of irrigated and drained land were transferred to kolkhozes and sovkhozes.

A total of 226,000 square meters of housing and a number of projects for municipal and social-cultural purposes were built in the republic's rural areas during 6 months of the current year.

The lecturers and speakers stressed that the realization of the USSR Food Program approved by the May (1982) Plenum of the CPSU Central Committee required the further intensification of agricultural production and increase in the efficiency of

utilization of material and technical resources. The attention of ministers and managers of departments was drawn to the need to overcome the lag permitted in the fulfillment of the plans for the construction of production capacities and housing and to improve the engineering preparation and organization of construction, its material and technical supply and deliveries of industrial equipment. Material-technical and labor resources must be concentrated primarily on start-up projects. Right now it is necessary to make active preparations for work during the fall and winter period.

The work of the UkSSR Ministry of Meat and Dairy Industry on an efficient utilization of dairy raw materials and on the construction of enterprises for the output of products was thoroughly analyzed at the commission meeting. Ways of building up production capacities and of increasing the volumes of preparation of dry skim milk, its substitutes, dry and enriched whey and milk sugar were discussed.

It was noted at the meeting that the UkSSR State Committee for Supply of Production Equipment for Agriculture, the State Committee for Material and Technical Supply and the State Committee for Supply of Petroleum Products carried out specific work on ensuring the deliveries of equipment, spare parts, fuels and lubricants for rural areas. Meanwhile, there are a number of shortcomings in the work of these organizations. During the first half-year the republic's agriculture failed to receive a significant number of dump trucks, tractor trailers, stackers, other machines and equipment, fuel and special work clothing. Now, when grain harvesting is in full swing on fields, there is a need for special efficiency in the work of managers and specialists and a high-level of labor organization in all the links of the agroindustrial complex. It is necessary to place the deliveries of resources from the allocations of the second half-year under special control and to establish closer contacts with supplier plants.

Yu. A. Kolomiyets, candidate member of the Politburo of the Central Committee of the Communist Party of the Ukraine, first deputy chairman of the UkSSR Council of Ministers, chairman of the Commission on Problems of the Agroindustrial Complex of the Presidium of the UkSSR Council of Ministers, and P. Ye. Yesipenko, deputy chairman of the UkSSR Council of Ministers, spoke at the meeting.

Agricultural Research and Development

Kiev PRAVDA UKRAINY in Russian 24 Jul 82 p 2

/Report on conference by V. Petrenko: "Cooperation of Scientists"/

/Text/ An expanded joint meeting of the Presidium of the UkSSR Academy of Sciences and of the Presidium of the Southern Department of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin held in Kiev on 21 July under the chairmanship of Academician B. Ye. Paton, president of the UkSSR Academy of Sciences, was devoted to the consolidation of the efforts, coordination of the activity and increase in the efficiency of research of the republic's scientists in the accomplishment of the tasks set by the May (1982) Plenum of the CPSU Central Committee and the June (1982) Plenum of the Central Committee of the Communist Party of the Ukraine.

G. A. Bogdanov, chairman of the Presidium of the Southern Department of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin, academician of the All-Union Academy of Agricultural Sciences imeni V. I. Lenin, and F. S. Babichev, vice-president of the UkSSR Academy of Sciences, academician of the UkSSR Academy of Sciences, discussed the problems that must be solved in order to attain the goals set by the USSR Food Program in their reports. V. I. Kostyuk, UkSSR deputy minister of higher and secondary specialized education, familiarized the audience with the studies of vuz scientists for the agroindustrial complex. D. I. Protsenko, chairman of the UkSSR State Committee for the Protection of Nature, drew the attention of those gathered to the tasks concerning environmental protection and an efficient utilization of natural resources.

In the course of discussion it was noted that the republic's scientific collectives did a great deal for the development of various links of the agroindustrial complex. For example, 376 varieties and hybrids of grain, pulse, fodder and oil-bearing crops have been developed and transferred for state strain tests and 130, which in their yield exceed standards 10 to 15 percent, have been regionalized. Industrial technologies of corn, sugar beet, sunflower seed and soybean growing have been developed and are being introduced. There are also advances in selection work directed toward the growth of productivity of animal husbandry and poultry breeding.

Feed premixes and vitaminized preparations proposed by scientists are being introduced into practice. Technological processes of welding, surfacing and spray-coating and other methods of reinforcing parts and units of machines and mechanisms are of great importance for an increase in the reliability and durability of agricultural equipment.

At the same time, it was noted at the meeting that the republic's scientific potential is not yet fully utilized for a successful solution of the problems of the agroindustrial complex.

It is necessary to expand and intensify the study of the genetic principles of selection of high-yielding varieties of agricultural plants and of highly productive breeds of animals, as well as of valuable microorganisms, including by methods of genetic and cellular engineering. We will have to increase our attention to matters connected with the preservation and increase in the fertility of soil and to problems of agrochemistry and of the development and optimum application of fertilizers, chemical and biological agents for the protection of plants and animals from weeds, pests and diseases, as well as of growth regulators and other physiologically active substances for the needs of animal husbandry and plant growing.

The basic tasks include the development of effective means and methods of conservation and enrichment of plant feed and of technologies of production of feed additives, vitamins, antibiotics and veterinary preparations. Investigations of problems of an efficient utilization of nature and, of course, the development of methods of controlling losses at all the stages of agricultural production, storage, transportation and processing of products are exceptionally important.

Concluding the discussion, academician B. Ye. Paton stressed the vast economic and political importance of the food program and noted the big role that science must play in it. An amended joint research plan for the 11th Five-Year Plan, which outlined specific tasks and measures concerning the basic directions of the agroindustrial complex, was approved.

S. I. Gurenko, deputy chairman of the UkSSR Council of Ministers, G. G. Yefimenko, UkSSR minister of higher and secondary specialized education and executives of the Central Committee of the Communist Party of the Ukraine, of the UkSSR Council of Ministers and of the republic's ministries and departments took part in the expanded meeting of the presidiums of the two academies.

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AGRO-ECONOMICS AND ORGANIZATION

SUBSIDIARY ENTERPRISES OF INDUSTRY

Fuel Base Farming Efforts

Moscow PRAVDA in Russian 23 Jul 82 p 2

/Article by V. Lisin, PRAVDA correspondent, Tyumen Oblast: "Tyumen's Agrarian Shop"/

/Excerpts/ Tyumen Oblast is one of the country's main fuel and power bases. The national economy obtains every second ton of petroleum and every third cubic meter of gas from it. However, a new facet of modern industrial production has become increasingly distinct in the oblast in the last few years. This is subsidiary farming--support in the provision of workers with food products--to the development of which enterprises pay ever greater attention.

Novyy Urengoy is the gas capital of the Tyumen north. A city of many thousands of residents has sprung up literally before our eyes in the Yamal Tundra near the Polar Circle itself. Those that develop the largest underground storeroom of "blue fuel" live in it. Gas flows in numerous fine streams from wells to the installation, where it is cleaned of admixtures, dried and under great pressure shipped through main lines to consumers.

The installation for overall gas preparation is essentially a small, highly mechanized plant. The service personnel is not large here. It is clean and comfortable here. In addition to shops, we were shown a hothouse, in which, despite the local cold weather, onions, radishes, cucumbers, tomatoes and even flowers were grown. The installation gives off much heat. Therefore, specialists decided to make use of it. Then they brought gas to the farm.

"The people say: The eyes are frightened, but the hands perform," R. Khvorostyanova, the installation's party group organizer, began the talk with a proverb. "We purchased young hogs on a sovkhos and equipped a barn for them from two vacant stall units. We get food waste from city restaurants. We have had our own fresh meat on the table for about 2 years."

Thus, a small collective of gas extractors, taking advantage of local opportunities, began to fatten hogs without big expenditures.

Of course, food supply for cities and settlements in the oblast is the main task of rural workers. It must be said that they cope quite well with it. Despite a number of unfavorable years during the past five-year plan, rural workers were able to significantly increase the gross production of farm and livestock products. Its further growth is envisaged even now.

At the same time, the output of subsidiary farms represents substantial help in the increase in food resources.

Last year Tyumen's "rural shops" produced more than 8,000 tons of meat, over 13,000 tons of milk, 27 million eggs, 2,100 tons of potatoes and 3,900 tons of vegetables. As can be seen, their contribution is considerable. The oblast party committee and the oblast executive committee engaged in extensive purposeful work on the stimulation of the activity of such shops.

The small village of Kopytovo is ensconced among gullies in a Tyumen suburb. About a dozen houses and a partially broken down poultry house. This is how Kopytovo appeared before N. Guslistyy, chief of the workers' supply administration of the Tyumengazprom Association, who was faced with the organization of a subsidiary farm at it.

In a short time the former poultry house was repaired, a feed kitchen was added to it and several hundreds of young pigs were brought there. A collection of food waste was organized in city restaurants and adjoining villages. However, the people soon became convinced that the feed problem could not be solved in such a way. Having improved and cultivated several hectares of unproductive and water-logged land, they occupied it with grass and fodder root crops. They began to prepare coniferous needles and hay.

Kopytovo cannot be recognized now. This is a modern settlement and the farm is a fattening complex, where 11,000 hogs are kept. There is also a cow house for 250 pedigree animals. Hothouses of a total area of about 3 hectares are being built.

Big hopes in the association are connected with the establishment of the large Gazovik Subsidiary Farm. A total of 5,000 head of large-horned cattle, 3,000 sheep and 300 koumiss mares are to be kept there. A canning plant, hothouses, an apiary and a pond fishery will be built. However, a great deal will have to be done for this. First of all, it will be necessary to drain and stub out 10,000 hectares of unsuitable land and to build a well-managed settlement for 6,000 residents with a hospital, a school, a children's combine and cultural and trade centers.

Construction is proceeding successfully. About 60 dwelling houses have been built and more than 2,000 hectares of arable land have been prepared. There is already livestock in sheepyards and cow houses.

A total of 24 kg of meat, 36 kg of milk, 10 kg of vegetables and 120 eggs per worker were obtained on the subsidiary farms of Tyumengazprom last year. However, this is considered the first step here. In the association by the end of the five-year plan the production of meat is to be almost tripled and of milk, increased more than six times, of eggs, seven times and of vegetables, nine times!

The outlined program is being realized. Subsidiary farms are being established in Novyy Urengoy, Surgut, Noyabrsk and Pangody.

Essentially, the establishment of subsidiary farms has only begun at the Tyumen main administrations of the USSR Ministry of Construction of Petroleum and Gas Industry Enterprises and this work is carried out slowly in Glavtyumengeologiya and Sibrybprom. It goes without saying that it is not easy to develop "rural shops." There are difficulties with the search for funds, materials and equipment and with the solution of organizational and technical problems. However, overcoming the psychological barrier and the habit of relying only on state resources is perhaps the most difficult. Some enterprise managers find excuses not to engage in subsidiary farming. Unfortunately, a number of ministries and departments, primarily the Ministry of Petroleum Industry, the Ministry of Industrial Construction, the Ministry of Power and Electrification and the Ministry of Transport Construction, have a condescending attitude toward such parasitical frames of mind.

The Surgut House Building Combine is one of the city's large enterprises. Two years ago, by the decision of the oblast executive committee, about 2,000 hectares were allocated to it in the rayon of the village of Shirokovo. However, house builders are not in a rush to develop this land. Even planning documents have not been worked out. S. Kalinichenko, director of the combine, would have long ago given thought to additional food reserves if the position of his direct managers from the Main Administration for Housing Construction in Regions of West Siberia had been more active in this matter.

Enterprises in Tyumen Oblast are scattered over a vast territory. Therefore, it is important, along with large subsidiary farms, not to forget small ones and, where possible, to establish hothouses and small sections, as was done at the installation for overall gas preparation in Novyy Urengoy.

The Tyumen north is intersected lengthwise and crosswise by powerful pipelines, through which flows of "blue fuel" rush at the speed of an express train to consumers. Numerous compressor stations dispatch them. Each of them has vast resources of secondary heat. More than 40 compressor stations now operate at Tyumen main lines. For the most part their heat is still lost. Apparently, the construction of hothouses and other agricultural projects should be envisaged at the stage of construction of compressor stations.

Object programs for the development of subsidiary farms are prepared in the oblast. In a number of cases they form integral parts of the overall plans for the economic and social development of administrative rayons. However, their successful implementation requires the coordinated actions of both sectorial and territorial management bodies.

Apparently, the volumes of production of agricultural products for individual enterprises and the entire department should be determined in long-term and current plans. Then ministries will begin to consider with greater interest the proposals of enterprises for a practical solution of problems of food supply on the basis of internal capabilities. In the opinion of specialists, there is an urgent need to simplify the formulation of state credits for these purposes and to more efficiently

work out the procedure of allocation of limits for the planning of subsidiary farms. Perhaps we should plan for the appropriate ministries the arrival of equipment, mineral fertilizers, toxic chemicals and small machines for "rural shops" and include such shops in statistical reporting in order to judge the nature and results of their activity.

Kurgan Machine Builders Supply Food

Moscow SEL'SKAYA ZHIZN' in Russian 6 Jul 82 p 2

/Article by A. Mit'ko, Kurgan Oblast: "For Itself and Others" /

/Text / Krasnoyarsk machine building and aluminum plants, about the obligations of which SEL'SKAYA ZHIZN' wrote a few days ago, are not alone in their striving to provide through their own efforts their collectives with food products. Many other enterprises in the country are following this path. Among them there is the Molmashstroy Plant in Kurgan Oblast.

The town of Dalmatovo is not big. Molmashstroy is the largest plant here and in the entire rayon. Plant workers make milk tanks, install them on the chassis of motor vehicles manufactured at the Minsk Motor Vehicle Plant and at the Kama Motor Vehicle Plant and dispatch them to various ends of the country. The enterprise's first subsidiary farm sprang up at the beginning of the 1950's, so that the present "shop without a number," as plant workers call it, emerged there not on an empty place, but continued an old tradition.

The people of Dalmatovo began to revive the plant's subsidiary farm with a hot-house, then turned to animal husbandry and now produce up to 32 kg of meat per worker annually and obtain 30,000 broilers, 1 million eggs and young hogs, which enterprise workers and specialists fatten with pleasure--200 to 250 per worker annually.

The problems of development of the rural shop are included in the collective agreement and interest literally all and everyone. This is how turner Vladimir Ivanovich Mezentsev defined his point of view of the subsidiary farm:

"This is a necessary and very important matter. This form of workers' supply must be developed."

Dmitriy Aleksandrovich Vishnyakov, deputy plant director, and Aleksandr Timofeyevich Novikov, former enterprise director, who founded the plant's subsidiary farm, saw a long-term, not short-term, advantage in its establishment. Then and now not a single weekly planning meeting takes place without solving current problems pertaining to the construction and development of the agrarian shop. No wonder a sectorial seminar for specialists of subsidiary farms of the ministry's enterprises was held at the Molmashstroy base last year. No wonder the decrees of the board of the Ministry of Machine Building for Light and Food Industry and Household Appliances and of the Presidium of the Central Committee of the Trade Union of Workers in Machine Building and Instrument Making point to the urgent need to widely popularize Dalmatovo's experience. Not without reason do guests come here to familiarize themselves with this experience. The people of Dalmatovo show them with pleasure agricultural machines, fields, hog houses, the hothouse and the poultry section.

There 32 people on the staff of the rural shop of Molmashstroy. All the people are solid and have a conscientious attitude toward work. However, the official position of farm manager A. Potashkin is chief of the preventive clinic. A considerable part of the ration of the hog herd consists of the waste of the restaurant of the preventive clinic. The organizers of the rural shop counted on it primarily when they established the hog farm. However, the small farm at the preventive clinic has now been transformed into an independent economic unit, but the authorized staff has not changed.

Another problem is connected with fodder land. The people of Dalmatovo do not fully understand the doubts of the specialists distributing it. Next to the city there is a field of 85 hectares, on which the students of the rural vocational and technical school, future machine operators of broad specialization, practise. Recently, the school has received a new yard for class activities, but the problem of transfer of the old one to Molmashstroy is by no means solved.

Valentin Yakovlevich Dorn, plant director, openly complains about the organizations that are supposed to give help and support to subsidiary farms.

"Our subsidiary farm has been in existence for 8 years. It is time to legislate its activity for those that distribute fertilizers, mixed feed and vitamins for young hogs and chickens. Everything has to be obtained by hook or by crook. I would like to mention that the plant is the largest in the city and most of Dalmatovo residents are connected in one way or another with it, which means, with the rural shop as well. We help both production veterans and young families in the establishment of private subsidiary farms. Meanwhile, every member of the horticultural association gathers more than 50 kg of vegetables and fruits from a plot. Some not only fully provide their families with these products, but also deliver surplus products to the city's trade organizations."

Of course, the people of Dalmatovo do not sit idly, waiting for help, but try to expand their farm. There is a small apiary here and a brigade is engaged in fishing on leased lakes located at a distance of 50 km from the city. Plant workers intend to build a new hog house for 1,000 head. They are thinking about a small dairy herd. Naturally, all this requires an expansion of the feed base and the allocation of additional land.

Judging by everything, Dalmatovo machine builders, like their Krasnoyarsk colleagues, whose obligations were discussed in SEL'SKAYA ZHIZN', are able to make a worthy contribution to the implementation of the food program of their oblast.

Livestock Plans, Tambov Oblast

Moscow EKONOMICHESKAYA GAZETA in Russian No 21, May 82 p 18

/Article by N. Grishin, instructor at the Tambov Oblast CPSU Committee: "Rural Shops of Enterprises"/

/Text/ The country's growing needs for livestock products necessitate a fuller utilization of all the sources of their production. This applies not only to modern highly mechanized complexes, sovkhoz and kolkhoz sections and private plots, but also to subsidiary farms of enterprises, organizations and institutions. Definite steps in the development of the latter have also been taken in Tambov Oblast.

First of all, it should be noted that this matter is placed on a planned basis. Before 1983 new subsidiary farms are to be organized at 26 large industrial enterprises and four construction organizations. According to calculations, they will produce (without taking into account previously organized small subsidiary farms) about 2,000 tons of meat, which will make it possible to greatly replenish the public dining balance of a number of large industrial enterprises.

To accomplish the outlined task, Soviet and agricultural organs made an analysis of the utilization of land areas. It was decided to give land, which for one reason or another does not yet give the desired results, to subsidiary farms. A total of more than 21,000 hectares, including about 17,000 hectares of arable land, were allocated.

The allocated land will make it possible to meet the needs of animal husbandry of subsidiary farms for their own feed. At the same time, the development of hog breeding on subsidiary farms was primarily taken as a guideline. By the end of next year they will fatten 27,000 hogs.

As an initial experiment a number of subsidiary farms will keep large-horned cattle and poultry. For example, the Uvarovo Chemical Plant, the Kirsanov Textile Machine Building Plant and the Morshansk Worsted Cloth Association, along with hog fattening, are building a barn for 100 to 300 head of large-horned cattle. The Morshansk Khimmash Plant, in addition to the fattening of 500 hogs, intends to keep 100 head of large-horned cattle, mainly cows, and 10,000 chickens, which will make it possible to fully provide the enterprise's public dining with livestock products.

Such enterprises as the Tambov Machine Building Plant, the Arzhenskiy Cloth Combine, the Pervomaysk Khimmash Plant and the Uvarovo Chemical Plant seriously engaged in the establishment of subsidiary farms. Technical and economic documents have been worked out at the Tambov Machine Building Plant. All organizational-technical, financial and other problems of the establishment of a strong and reliable agrarian shop for this enterprise have been solved.

However, in every new undertaking there are always certain difficulties, which sometimes hamper a good cause. Some ministries and departments delay the coordination of matters connected with the establishment of subsidiary farms at the enterprises subordinate to them and are slow in allocating equipment, fertilizers and capital investments. Nor has the problem of staffs for subsidiary farms been solved.

For example, the Ministry of Railways in its orders and various letters seemingly pays attention to problems connected with the development of subsidiary farms. In fact, however, this concern is not felt locally. For example, in practice, staffs have not been assigned and agricultural equipment has not been delivered to the Tambov Railroad Car Repair Plant to this day. True, this year the plant has received one T-25 tractor designed for soil cultivation in fruit nurseries and tea and citrus plantations, which, naturally, the enterprise has rejected. Problems connected with the allocation of limits for planning have not been solved completely. For some reason the ministry stubbornly does not agree with the fact that plans are to be prepared at the local planning institute in a short time and recommends the departmental planning organization Voronezhzheldorproyekt, whose capabilities are not so great.

Unfortunately, this example is not an exception. There are also unfortunate misunderstandings with the allocation of funds for high-grade seeds, young pedigree stock, agricultural machines, implements and spare parts. Their supply is entrusted to agricultural organs and the Agricultural Equipment Association. Of course, the oblast party committee and the oblast executive committee try to solve these problems through their own efforts. However, not everything turns out the way one would like. The more actively subsidiary farms are established, the more unsolved problems will appear, problems that require the attention of central, not only of local, organs.

Northeastern Kazakh Local Resources

Moscow IZVESTIYA in Russian 19 Jul 82 p 2

[Article by V. Shchepotkin, IZVESTIYA correspondent, East Kazakhstan Oblast: "Rural Shop of Rudnyy Altay"]

[Text] Utilizing local resources efficiently, East Kazakhstan Oblast attained a marked increase in food production. During two five-year plans the sale of meat products increased by one-third. Poultry breeding on an industrial basis became an important reserve in the food business. A total of 350 eggs per oblast resident are now annually obtained here and the sale of this output to the state has increased sharply. Fresh vegetables can be bought in stores in winter and summer. Cost accounting has become an instrument of efficient management. The contribution of subsidiary farms of industrial enterprises to an improvement in the population's supply is significant.

The first thing that the person arriving at stores in Rudnyy Altay notices is the good selection of products--chicken, broiler and duck meat, eggs, beef and pork at a comparatively low commission price and natural honey. In vegetable stores, along with the usual assortment--from golden common onions to potatoes--one can buy fresh cucumbers and tomatoes straight from the bed.

"It should be stressed," N. Kuz'menko, chief of the oblast trade administration, says, "that the sale of foodstuffs has increased through internal reserves, primarily those that have been uncovered with the transfer of animal husbandry to an industrial basis. After all, a full utilization of local resources, as noted at the May (1982) Plenum of the CPSU Central Committee, is one of the guarantees of a successful solution of the food program."

Subsidiary farms of industrial enterprises also help here. Whereas in 1971 they produced 79 tons of pork, last year, 342 tons. The arrival of meat on markets from private subsidiary farms has also increased sharply. Almost 1,200 tons of meat were sold there last year. However, the most important thing is that, recently, the oblast has developed poultry breeding intensively.

In fact, poultry breeding in Rudnyy Altay, from a subsidiary sector not having a marked effect on the population's supply, was transformed into a highly efficient and industrial sector. This is especially instructive, because East Kazakhstan

Oblast, which 10 years ago was in the fourth place in the republic in the size of the population, occupied the ninth place in poultry meat and egg production. Now only three oblasts are ahead of it. A total of 350 eggs--90 eggs more than the average in the republic--are now produced per resident annually.

Selecting poultry breeding as one of the main directions in the solution of the food problem, people set two tasks for themselves here: To build poultry factories as quickly as possible and to master their planned capacities without delay.

Control over the course of construction on the part of the oblast party committee and the oblast executive committee and the help of industrial enterprises had their effect. A large broiler factory and two factories for egg production were established in a short time.

The collective of the broiler factory worked creatively even during the period of mastering of production capacities. During that time many innovations were introduced in the operation of the incubator and in the preparation of premises for the acceptance of new poultry batches.

In the last few years the Ust'-Kamenogorsk Factory has joined the ranks of the flag holders of the broiler industry.

The introduction of cost accounting on the Predgornenskiy Pedigree Poultry Sovkhoz forced the entire collective to search for ways of lowering the cost of output. It carried out reconstruction on its own, which made it possible to increase the number of laying hens. The service personnel was reduced as a result of the doubling up movement.

Poultry breeders find ever newer possibilities for an increase in output.

Hearing that equipment, which is not needed now because of the prolonged periods of construction, is lying somewhere in Irkutsk or in Kalininsk Oblast, specialists of the East Kazakhstan Administration of Poultry Raising Industry go there and make arrangements to purchase it. The association can now buy a great deal. A total of 10 million rubles of profit were obtained there last year alone.

Local plants also help factories well. One plant makes floor gratings, another coats these gratings with zinc and still another makes nonstandard equipment.

Whereas 157 tons of meat were sold to the state at the beginning of the 9th Five-Year Plan, 9,202 tons were sold last year. This is not a double or a triple, but a fiftyfold growth! During the past five-year plan East Kazakhstan poultry breeders promised to deliver 689 million eggs and 26,500 tons of meat to the oblast's trade network. However, owing to the overfulfillment of assignments, the oblast obtained 803 million eggs and almost 35,000 tons of meat.

Having provided the population of its industrial centers with this output, last year alone East Kazakhstan Oblast delivered more than 50 million eggs to its neighbors. What are the further plans connected with the solution of the food program? A. Protozanov, first secretary of the oblast party committee, says:

"If poultry breeding is discussed, its transfer to an industrial basis enabled the oblast to change from a consumer to a major supplier of output. We have acquired experience not only in an accelerated development of new factories, but also in an increase in their capacities without big capital expenditures. The help of industrial enterprises also had an effect. They helped to establish poultry factories and now participate in the construction of hothouses. The largest duck complex in the republic is now being built by the method of people's construction at the Cheremshanskaya Poultry Factory. There will be eight duck houses at it. The annual productivity of each will be about 1,000 tons of meat. Last year the trade network of cities received the first 1,000 tons of duck meat. When the complex is put into operation--its completion is planned for this year--the oblast will produce almost twice as much poultry meat as now.

"At the same time, we did not forget about other potentials. They are considerable on subsidiary farms of enterprises. For example, last year the Irtysh Poly-metallic Combine sold more than 150 tons of meat through its stores and public dining enterprises.

"Hothouse vegetable growing is being widely developed in our oblast. Now there is 1 square meter of hothouses per resident of the oblast center. A total of 20 kg of hothouse vegetables per resident of Ust'-Kamenogorsk are now produced annually. However, the demand for fresh vegetables, especially in winter and spring, is growing. Therefore, plans are made to put into operation another block of hothouses on an area of 6 hectares for next year."

The hothouse farm, whose development began only a few years ago, was transformed into an industrial enterprise with an efficient schedule of deliveries of products to stores. Now no one is surprised here that fresh cucumbers, green onions and tomatoes can be bought in the middle of winter.

"We have a field of about 27 hectares under glass," says I. Tsvetkov, director of the Hothouse Sovkhoz imeni 23 S"yezda KPSS.

The Ust'-Kamenogorsk Hothouse Sovkhoz is the largest vegetable growing farm in the republic. Almost 39 kg of cucumbers per square meter were gathered there last year. More than 12 kg of tomatoes per square meter were obtained. An experienced collective of vegetable growers was formed in a few years. Last year it gave more than 7,000 tons of vegetables to city dwellers. Workers on the hothouse farm, experimenting, are beginning to grow Bulgarian pepper on glass-covered ground. In order to vary the table of city dwellers, they intend to grow mushrooms on an area of 1 hectare. The fact that not long ago the all-Union seminar on hothouse vegetable growing was held in Ust'-Kamenogorsk emphasizes the solid nature of the vegetable shop of Rudnyy Altay.

Finally, discussing the solution of food problems in the cities of East Kazakhstan, we must not fail to mention the participation of consumer cooperatives in this. The purchases of livestock products from the population, which means their deliveries to cities, have increased in the last few years. For example, at stores in Ust'-Kamenogorsk, Leninogorsk and Zyryanovsk last year cooperative workers sold 400 tons of meat more than a year ago.

However, it is impossible to say that cooperative workers energetically help their industrial oblast to solve food problems, as poultry breeders and vegetable growers do. Recently, they were seriously criticized at the bureau of the oblast party committee, where shortcomings in the work of consumer cooperatives were discussed. For example, in Shemonaikhinskiy Rayon assignments for meat, milk, honey and egg purchases were not fulfilled. The slack work of local cooperative workers is one of the reasons. According to V. Taranukhin, chairman of the executive committee of the Kamenevskiy Rural Soviet, residents of many rural areas would like to sell milk and eggs, but the procurement office of the rayon union of consumer societies, like last year, does not properly organize purchases.

However, opportunities remain unutilized not only here. Last fall alone, owing to shortcomings in the organization of purchases of livestock from the population, the oblast, as cooperative workers themselves admitted, failed to obtain almost 1,000 tons of meat. Cooperative workers purchased less vegetable oil and honey from the population than they could.

Thus, along with a skillful and truly instructive utilization of a number of opportunities to make the table of city dwellers richer, considerable potentials remain in East Kazakhstan Oblast.

Livestock From Lipetsk Cooperatives

Moscow SEL'SKAYA ZHIZN' in Russian 15 Jul 82 p 2

/Article by A. Popov, chairman of the board of the Lipetsk Oblast Union of Consumer Cooperatives, Lipetsk Oblast: "Account of Weight Gains"/

/Text/ The contribution of consumer cooperative workers to the replenishment of the oblast's food resources is significant. The development of subsidiary farms and the organization of intensive fattening of animals on them occupy a special place. The collective of the Lebedyan Wine Plant managed by experienced organizer I. M. Dubinin manifested initiative there. It began by leasing a vacant barn on the Pokrovo-Kazatskiy Sovkhoz more than 3 years ago and purchasing 100 young hogs for fattening through the pedigree livestock office. Developing its own production base, the plant collective built a standard fattening hog house for 400 head with a full mechanization of processes of feed preparation and distribution. Last year it removed 395 hogs from fattening, obtaining 270 quintals of weight gain.

The material base of the subsidiary farm is to be further strengthened at the plant. A hog breeding house for 35 head was put into operation at the beginning of the year. We are completing the construction of a cow house, where a shop for the separation and cooling of milk will also be equipped.

With the organization of the subsidiary farm public dining has improved considerably. The plant restaurant always receives fresh meat, from which the most various dishes are prepared. Soon it will also begin to receive dairy products.

Cooperative workers in Zadonskiy Rayon also manifest great concern for the development of the subsidiary farm. Not having stationary barns, this is not the first year that they have been fattening up to 40 hogs in summer camps. Last year the

procurement office of the rayon union of consumer cooperatives acquired a vacant barn on one of the rayon farms, repaired it, installed mechanisms there and began fattening hogs. On the average, daily weight gains total 440 grams and by December farm workers obtained 300 quintals of weight gain. Cooperative workers in Zadonskiy Rayon also fatten large-horned cattle and raise rabbits.

Popular wisdom says: Every endeavor is glorified by man. Such cooperative workers in Zadonskiy Rayon as the couple Nina Trofimovna and Mikhail Ivanovich Yefremov deserve a word of appreciation. P. R. Shpagin, director of the procurement office, proved to be a thoughtful manager full of initiative.

Great concern for an increase in the production of livestock products is manifested in Usmanskiy Rayon. The fattening of animals, processing of meat and production of various products from it at local enterprises were widely expanded there. The construction of a mechanized hog house for 1,000 head is now being completed.

The board of the oblast union of consumer cooperatives supported the initiative of advanced cooperative workers in the development of subsidiary farms. Seminars on an exchange of experience in the organization of the fattening and reproduction of livestock, utilization of feed reserves and establishment of the material and technical base were held at the base of fattening centers at the Lebedyan Wine Plant and the Zadonskiy and Usmanskiy Rayon Consumer Societies. We generalized the experience of advanced subsidiary farms and provided financial incentives for the best workers.

The experience of advanced workers in the organization of subsidiary farms is widely used in all 18 rayon unions of consumer cooperatives. In Yeletskiy and Chaplygin-skiy Rayons people began to more actively engage in the fattening of animals. For example, last year cooperative workers in Yeletskiy Rayon removed 275 hogs of an average live weight of 102 kg from fattening. On the whole, in cooperative organizations in the oblast there are 39 fattening centers, of which 12 were established at public dining enterprises.

Experience suggests that in the system there are many possibilities to organize the fattening of animals with the most minimal expenditures of feed and labor. It is possible to fully provide cooperative public dining enterprises with meat and to organize the output of cooked meats and smoked foods. For example, last year we obtained 250 tons of meat and purchased 5,600 tons from the population. Having supplied restaurants, we produced and sold 1,600 tons of cooked meats and 2,500 tons of meat to the population through cooperative trade stores.

Cooperative workers try to establish a firm feed base. We know that this is a stumbling block for many people. Therefore, we would like to share some experience. We utilize local resources. For example, the Lebedyan Wine Plant successfully uses waste-free technology of fruit and vegetable processing. Whereas previously apple pulp, cabbage leaves and other production waste were dumped, silage is now made from them. Part of the pulp is dried on units for the preparation of vitamin meal and meal is used in the fattening of animals.

Workers at the Lebedyan Wine Plant, to whom 50 hectares of land were allocated, developed it well, fertilized it and began to raise fodder on it. Last year they obtained 200 tons of green corn fodder, 50 tons of fodder sugar beets and the same

amount of grain. A total of 300 tons of apple silage and 100 tons of vitamin meal were prepared from production waste. The prospects for the harvest are also not bad now. Cooperative workers in Zadonskiy Rayon also obtain a considerable amount of fodder on previously vacant land. Almost all rayon unions of consumer cooperatives widely utilize the food waste of public dining enterprises in the fattening of animals.

What are our plans for this year? According to calculations, we should fatten 5,200 hogs, 250 head of large-horned cattle and 2,000 rabbits. In addition to this, we plan to purchase no less than 6,700 tons of meat from the population, to produce 1,700 tons of cooked meats and smoked foods from it and to sell 3,000 tons to the population through cooperative trade stores. This will be our contribution to the cause of replenishment of the oblast's food resources and a practical response to the decisions of the May Plenum of the CPSU Central Committee.

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CSO: 1824/484

TILLING AND CROPPING TECHNOLOGY

EFFECT OF FLUCTUATIONS IN WEATHER CONDITIONS ON AGRICULTURAL PLANNING

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 10, Oct 81 pp 97-104

/Article by I. Zagaytov, doctor of economic sciences, professor, Voronezh: "Fluctuations in Weather Conditions and Planning of Agricultural Production"

/Text/ The level of scientific substantiation of plans on the basis of a fuller knowledge of the operation of economic laws of socialism has risen in the last few years. Owing to this, a more overall approach to the elaboration of plans for economic and social development has been ensured. Objective possibilities for production growth on all farm categories, including subsidiary farms of workers and kolkhoz members, are taken into consideration better. Efficient methods of intensification of farming and animal husbandry and of the placement and specialization of agricultural production on the basis of interfarm cooperation and agroindustrial integration are determined. Standard-balance methods of plan substantiation and so forth are used more systematically at all levels.

At the same time, some planning problems are still solved in an insufficiently systematic way; in particular, such an important social and economic problem as the equalization of the economic conditions of management of kolkhozes and sovkhozes through an all-around study of the production level attained in individual enterprises, as well as of the differences in the natural conditions of farm management. This is due primarily to the weakness of the standard base, especially in the part of interconnection of economic and natural factors. What is really at the disposal of the economist trying to differentiate the assignments for the production and purchases of agricultural products for individual kolkhozes, sovkhozes and rayons with due regard for natural conditions? No more than the data of the land cadaster, which, as is well known, is compiled statistically, assuming an equal level of intensity on better and worse plots. At the same time, planning work requires the knowledge of the comparative effectiveness of additional investments in land of different categories and the ability to compare the quality of land at an unequal level of production intensity. Therefore, a dynamic evaluation of land is needed.

Standards developed on the basis of a dynamic evaluation of land will make it possible to significantly improve the planning of capital investments and to more efficiently implement measures for an improvement in the placement of agriculture, transformation of land and determination of plots, which, preferably, should be utilized for nonagricultural needs. This will increase the scientific substantiation of plans for the development of the production of enterprises and rayons,

raise the level of planning of material and technical supply, contribute to an improvement in the system of regulation of the income of individual farms and facilitate an effective organization of control over an efficient utilization of combined production resources. The practical effectiveness of the application of the indicated standards depends on the ability to utilize them in planning both at the stage of preparation of plan variants and when the best of them is selected.

However, the problem of development of standards taking into consideration the effect of another natural factor--interannual fluctuations in weather conditions--is the least studied problem. Owing to the lack of data on the probable directions in changes in meteorological conditions during each subsequent year--improvement or deterioration in weather conditions in relation to the preceding year--the average data for the last 3 to 5 years are taken as the basis for long-term calculations in practical work. In fact, this means that something like a climatic constant, not the meteorological factor, which, naturally, cannot but fluctuate, figures in calculations.

This affects the quality of planned assignments and the level of their fulfillment and creates additional difficulties in the maintenance of the necessary proportions among the sectors of the agroindustrial complex and in the provision of stably high rates of their development. To some extent, precisely because of the lack of a record of periodic fluctuations in weather conditions, in the RSFSR the plans for grain purchases were greatly overfulfilled in 1976 and 1978 and underfulfilled in 1975 and 1979-1980.

Scientific-technical and social progress makes it possible to gradually weaken the negative economic consequences of unstable meteorological conditions, which is connected with a general rise in the standard of production in farming and the creation of prerequisites for the neutralization of a number of unfavorable meteorological factors. For example, in 1975, when the lengthy drought enveloped almost all the grain producing regions of our country, nevertheless the yield of grain crops was much higher than in the universally favorable years of 1913, 1937 and 1952. It is characteristic that at state strain testing plots, where the standard of farming greatly outstrips the average level of kolkhozes and sovkhozes, in 1975 the yield of grain and pulse crops exceeded the average Union level in the record year of 1978 by 22 percent. This is a concrete confirmation of the fact that, despite the significant fluctuations in weather conditions, the "yield of land can be infinitely increased through the application of capital, labor and science."¹

Noting the growing ability of society to withstand periodic deteriorations in weather conditions, it should be kept in mind that until recently it has been manifested mainly in relative, not absolute, indicators. The absolute level of damage due to unfavorable weather conditions still retains the tendency toward a rise. For example, whereas throughout the country in 1921 the reduction in the yield of grain crops in relation to the average annual level of the preceding 3-year period was 1.2 quintals per hectare, in 1936, 2.3 quintals per hectare and in 1963, 2.5 quintals per hectare, in 1974, 4.8 quintals per hectare. We would like to note that at state strain testing plots fluctuations in meteorological conditions also cause a considerable instability of harvests in absolute terms, the intensity of the drop reaching 14 quintals in Krasnodarskiy Kray, 15 quintals in Voronezhskaya Oblast, 21 quintals in Dnepropetrovskaya Oblast and so forth. Therefore, it can be expected that for most farms the effect of meteorological factors will remain significant for quite a long time.

However, even at the present level of development of productive forces there are possibilities to obliterate the economic consequences of unfavorable meteorological conditions--through an improvement in the structure of agricultural sectors, a prompt creation of sufficient reserve funds and a rise in the standard of farming.

The transition to the planning of the production and distribution of agricultural products with due regard for fluctuations in meteorological situations requires a preliminary creation of certain material prerequisites, as well as the solution of some scientific and technical problems, primarily the development of a reliable method of forecasting fluctuations in weather conditions with a 1-year term of forecast.

Investigations in this direction were conducted and in some cases forecasts that were corroborated were obtained. For example, S. D. Griboyedov forecast a drought for a considerable part of Russia in 1911, in November 1920 V. A. Mikhel'son warned about a possible intensification of the drought in 1921, in February 1972 T. V. Pokrovskaya warned about a probable shortage of precipitation in the European part of the USSR during the summer period of that year and L. A. Vitel's forecast a drought for 1974-1975 very much in advance. However, the forecasts of interannual fluctuations in meteorological conditions worked out on the basis of natural scientific hypotheses cannot be considered stably reliable, because they do not withstand checks by mass statistical data both during past and subsequent periods. At the present level of natural scientific knowledge the basic parameters of the meteorological situation do not always lend themselves to a successful determination even for 1 month in advance and extensive work will be needed to create a theory clearly explaining the dynamics of weather conditions during several contiguous years.

However, it would be wrong to conclude that before the development of such a theory, in practice, it is impossible to forecast interannual fluctuations in the yield of agricultural crops. Where the physical causes of some phenomena remain unclear, statistics making it possible to narrow down the directions in the search for interconnections of interest to us and to establish some most general quantitative patterns, which it is advisable to utilize in the solution of individual problems, can play an important role in the knowledge of the above-mentioned phenomena.

The use of statistical methods and models in the forecast of fluctuations in the yield presupposes an analysis of information during a comparatively long period in order to try to disclose in it a certain sequence in the alternation of rises and declines in the yield and to become convinced that the established sequence pertains not only to the past period, but can also be preserved in the very near future, that is, it is statistically regular.

The available experience points to the great importance of reliable data for an investigation of the dynamics of harvests during a long time interval. Statistical data on grain crops have an advantage here, because the state record of the yield of grain crops in our country was formed at the beginning of the 18th century. However, the difficulty lies in systematizing the accumulated archive material, in subjecting it to an all-around historical and economic processing, in trying to present it in the form of continuous series or long "chains" and in conducting an analysis at micro- and macroregional levels. Investigators still have

to perform such work, but in the meantime the so-called "Mikhaylovskiy's series" is used as the basic source of information on the pre-Soviet period. Comparing the evaluations of various authors, it should be concluded that, excluding the data prior to 1848 as insufficiently reliable, at the Union level the statistical evaluations of fluctuations in the yield can be made for 130 years.

Embarking on the processing of this information, it must not be forgotten that during the period under consideration the methods of recording the harvest and the geography of the consolidation of data changed several times, significant shifts in the social conditions of production took place and so forth. Therefore, there is a reason to use with greater confidence the sign of interannual fluctuations in the yield (plus or minus with respect to the preceding year) than the quantitatively concrete value of fluctuations. In any case the dynamics sign was controlled by expert evaluations and it is unlikely that, ultimately, it was incorrectly indicated whether the yield increased or decreased in a year. Therefore, it is necessary to begin an analysis with the formulation of a comparatively limited problem, that is, a search for a sequence in the alternation of the sign of fluctuations in the yield alone, and only after the search is successful to change over to a quantitative measurement of fluctuations.

A number of patterns were disclosed during the study of the periodicity of the replacement of rises with drops in the yield of grain throughout our country in 1848-1980, in the United States in 1867-1978, in Australia, Argentina, Great Britain, Italy, Canada and France during the period following 1919 and throughout RSFSR oblasts during the postwar period.

The first lies in the fact that the sign of interannual fluctuations in the yield of each subsequent year depends on the so-called majorant ratio of harvests (W_{i-1}) representing the correlation of the yield during the preceding (Y_{i-1}) and record year (Y_{iM}).

$$W_{i-1} = Y_{i-1} : Y_{iM}$$

One can become convinced of the efficiency of use of the majorant ratio for a description of the sign of fluctuations in harvests on the basis of the data in the table.

Here it is evident that, for example, in the calculations based on the results of 1927, when 7.6 quintals per hectare were gathered and the preceding maximum (majorant) harvest reached 8.3, the majorant ratio was $7.6:8.3=0.916$ and so forth. The sign of fluctuations in the yield was established by a comparison of the corresponding indicators of each subsequent year with the preceding one. In the absolute majority of cases, if the majorant ratio exceeds 0.946, during the following year the yield of grain crops is lowered, that is, it is characterized by the minus (-) sign and, if it is lower than this value, by the (+) sign. A total of 81 percent of the declines and rises in the yield of grain crops in our country are correctly described by such a method in 1848-1980 and 87.5 percent, in Italy, 85 percent, in Australia, 84 percent, in Argentina and so forth during the period following 1919.

Majorant Ratios and the Sign of Fluctuations in the Yield of Grain Crops in the USSR in 1922-1980

(1)	(2)	(3)	(4)	(5)
1922	7,6	7,6		
1923	7,2	7,6	0,948	-
1924	6,2	7,6	0,816	+
1925	8,3	8,3	1,001	-
1926	8,2	8,3	0,987	-
1927	7,6	8,3	0,916	+
1928	7,9	8,3	0,952	-
1929	7,5	8,3	0,904	+
1930	8,5	8,5	1,026	-
1931	6,7	8,5	0,788	+
1932	7,0	8,5	0,823	-
...
...
1947	7,3	7,3		
1948	6,7	7,3	0,918	+
1949	6,9	7,3	0,945	+
1950	7,9	7,9	1,082	-
1951	7,4	7,9	0,937	+
1952	8,6	8,6	1,088	-
1953	7,8	8,6	0,907	-
1954	7,7	8,6	0,895	+
1955	8,4	8,6	0,976	+
1956	9,9	9,9	1,150	-
1957	8,4	9,9	0,849	+
1958	11,1	11,1	1,120	-
1959	10,4	11,1	0,936	+
1960	10,9	11,1	0,982	-
1961	10,7	11,1	0,964	+
1962	10,9	11,1	0,982	-
1963	8,3	11,1	0,748	+
1964	11,4	11,4	1,027	-
1965	9,5	11,4	0,834	+
1966	13,7	13,7	1,200	-
1967	12,1	13,7	0,883	+
1968	14,0	14,0	1,021	-
1969	13,2	14,0	0,943	+
1970	15,6	15,6	1,114	-
1971	15,4	15,6	0,987	-
1972	14,0	15,6	0,898	+
1973	17,6	17,6	1,129	-
1974	15,5	17,6	0,880	-
1975	10,9	17,6	0,619	+
1976	17,5	17,6	0,995	-
1977	15,0	17,6	0,852	+
1978	18,5	18,5	1,051	-
1979	14,2	18,5	0,766	+
1980	14,8	18,5	0,800	+

[Key on following page]

Key:

- | | |
|--|--------------------------------------|
| 1. Year | 4. Majorant ratio |
| 2. Yield, quintals per hectare | 5. Sign of fluctuations in the yield |
| 3. Preceding maximums (majorants) of the yield | during the following year |

An all-around scientific explanation of this statistically established fact is possible only within the framework of natural scientific methods and theories. However, it is assumed that the noted pattern is one of the external manifestations of the complex "soil-plant-weather" interaction, which at the level of interannual comparisons assumes the form of nonperiodic cyclic fluctuations with a certain share of autocorrelation. In this case the element of autocorrelation is due to the fact that a high harvest causes a "rapid absorption and extraction from soil of mineral fertilizers still hidden in it." Conversely, a low harvest "and, moreover, a number of unproductive years following it enable minerals forming part of the soil to accumulate again..."² Analyzing the periodic replacement in Russia of "culminating" rises with declines in the yield and of "very unproductive years" with productive ones, Marx reached the conclusion that the so-called "small cycle" of harvests, which, "of course, occurs everywhere, but in other places is restrained and modified as a result of the interference of the farmer himself," is manifested here.³ Apparently, the infrequent disruptions in this sequence expressed in a repetition of declines or rises in the yield during a number of years are connected with the application of a specific pulsation of weather conditions to the "soil-plant" interaction. This pulsation is characterized, among other things, by the fact that after considerable anomalies in meteorological conditions the following year is closer to the norm. Since record levels (majorants) of the harvest are usually timed to coincide with a combination of favorable fluctuations in "small cycles" of the harvest and meteorological cycles, the majorant ratio becomes an effective indicator of declines-rises in the yield.

The second pattern in fluctuations in harvests lies in the fact that, as productive forces develop, the dependence of the sign of fluctuations in the yield on the majorant ratio is gradually modified, which reflects the growing ability of society to withstand elemental fluctuations in the natural conditions of agricultural production. Thus, studying the dynamics of the yield of grain crops in our country, it can be easily noted that, when the technical capabilities of farming were lower, majorant levels of harvests were attained less frequently (in 1848-1940, once in 5 years and in 1945-1980, once in 3 years) and cases when declines occurred at majorant ratios below 0.946 were more frequent (34 percent of the cases in 1848-1940 and 16 percent, during the postwar period). It is characteristic that in countries with natural conditions of production more favorable than in our country, owing to the application of optimum fertilizer doses, introduction of new varieties and efficient change in the structure and placement of grain crops, in a number of cases it is possible to attain a yield growth even during years following the record level.

In the process of study of fluctuations in harvests the indicated pattern can be taken into account by various methods--either as a factor modifying the majorant ratio in dynamics, or as a factor modifying chain (in percent of the preceding year) indices in the yield, or as an independently operating factor. In the latter case it can be introduced into calculations in the form of the indicator of the previously attained yield level, because the development of productive forces is fixed in the dynamics of harvests.

The third pattern is manifested in the fact that the share of fluctuations correctly described by the indicated method depends on the geographical boundaries of the studied territory and its meteorological homogeneity. Usually, administrative boundaries violate this homogeneity, which greatly lowers the effectiveness of calculations if this factor is not taken into account. Therefore, a preliminary separation of the object of investigation into zones, in which the dependence of fluctuations in harvests on majorant ratios is repeated in dynamics with the greatest stability, is a mandatory condition of successful forecasts. Two variants are possible here: Majorant ratios of either the directly studied region, or of another region, with which it is connected in a specific way by the sequence of repetition of meteorological processes during the vegetative period, can be taken as indicators of fluctuations.

The RSFSR, where during the postwar period it is possible to correctly single out all declines, when $(48.3-39.8 W_{i-1}) < Y_{i-1}$, and rises when $(48.3-39.8 W_{i-1}) > Y_{i-1}$, is the largest zone of stable fluctuations in the yield of grain crops within the Union.

In turn, it is advisable to separate the Russian Federation into a number of meteorologically stable zones, whose boundaries do not coincide with the accepted economic regionalization, because it was based on different principles. In our opinion, at present it is possible to single out here five such meteorological zones, where the total area sown with grain crops is 57 million hectares. More than 93 percent of the declines and rises in the yield of grain crops are correctly described according to the majorant ratio in each of them: the Central-Nonchernozem Zone consisting of oblasts of the RSFSR Central Region, the Mordovskaya ASSR and Gor'kovskaya Oblast; the southern zone--oblasts of the Central Chernozem Region and of North Caucasus, the Kalmytskaya ASSR and Volgogradskaya and Astrakhanskaya Oblasts; the Central Volga Zone consisting of Kuybyshevskaya and Saratovskaya Oblasts; the Ural-Irtysh Zone--oblasts of the Ural Region, the Tatarskaya and Bashkirskaya ASSR and Tyumenskaya and Omskaya Oblasts; the Trans-Baykal Zone--the Buryatskaya ASSR and Chitinskaya Oblast.

It can be expected that by means of an appropriate agrometeorological regionalization in time it will be possible to obtain satisfactory results for other territories as well. However, the smaller the studied region, the more frequently the symptoms of forthcoming declines-rises in the yield are best disclosed not mandatorily according to the dynamics of the majorant ratio of the territory for which fluctuations are studied. For example, within Voronezhskaya Oblast during the postwar period 86.5 percent of the fluctuations in the harvests of grain crops are correctly described by majorant ratios and, when the data of the entire southern meteorological zone are utilized, almost 97. A similar result for Chelyabinskaya Oblast is attained if majorant ratios throughout the oblasts of the Ural Region, Bashkiria and Tyumenskaya Oblast (W_{i-1}) are used as the indicator of the forthcoming changes in the sign of fluctuations in harvests.

At the same time $Y_i > Y_{i-1}$, when $W_{i-1} < 0.73$;

$Y_i < Y_{i-1}$, when $W_{i-1} > 0.73$.

This also fully applies to calculations of individual types of grain crops. For example, according to the dynamics of the majorant ratio of harvests of winter wheat in the Ukrainian SSR changes in its yield throughout the Central-Chernozem Region are described. According to the dynamics of harvests on the territory of Rostovskaya, Voronezhskaya and Volgogradskaya Oblasts it is possible to forecast the sign of fluctuations in the harvests of spring and winter wheat in Voronezhskaya Oblast and according to the data of North Caucasus the conditions of winter wheat production throughout the RSFSR are evaluated with a 1- and 2-year term of forecast.

The fourth pattern, which we noted as long ago as 1972 during the publication of the forecast for 1975 that proved to be correct, lies in the fact that fluctuations in harvests, especially when they are studied at a macroregional level, are partially under the effect of impulsive-cyclic processes.⁴ For example, throughout the territory of our country (apparently, this is also characteristic of the present RSFSR territory) conditions unfavorable for grain crops occurring once in 6 years are observed quite clearly: 1855, 1861, 1867, 1873, 1879, 1885, 1891, 1897, 1903, 1921, 1927, 1933, 1939, 1945, 1951, 1957, 1963, 1969 and 1975 were unproductive. The results of 1909 and 1915 were an exception, but this is fully explainable, because exceptionally low values of the majorant ratio--0.82 and 0.76 respectively--corresponded to them.

Limiting oneself only to a statistical analysis, one cannot reliably explain why a deterioration in the meteorological conditions of grain production is noted once in 6 years. However, the practical possibilities for a forecast on its basis should not be overlooked, especially as, according to Prof. O. A. Drozdov's evaluation, 6- or 7-year cycles are well expressed in fluctuations in precipitation and temperatures on the USSR territory.⁵

In order to increase the reliability of forecasts, first of all it is advisable to combine calculations of different terms of forecast--many-year, 1-year and seasonal. For example, the forecast of a 1-year term for winter wheat in the RSFSR presupposes that $Y_i > Y_{i-1}$, when $85.3-72.5 W'_{i-1} > Y'_{i-1}$;

$$Y_i < Y_{i-1}, \text{ when } 85.3-72.5 W'_{i-1} < Y'_{i-1};$$

where W'_{i-1} is the majorant ratio of the yield of winter wheat in North Caucasus;

Y'_{i-1} is the yield of winter wheat in North Caucasus during the preceding year.

In the calculations of a 2-year term of forecast for this crop we have:

$$Y_i > Y_{i-2}, \text{ when } 149.5 W'_{i-2} - 123.6 < Y'_{i-2};$$

$$Y_i < Y_{i-2}, \text{ when } 149.5 W'_{i-2} - 123.6 > Y'_{i-2}.$$

The 2-year forecast on the basis of the correlations cited indicated that an increase in the yield of winter wheat in the RSFSR in excess of what was attained in 1976 (25.6 quintals) was to be expected in 1978. At the same time, an evaluation of a 1-year term of forecast pointed to a reduction in the yield as compared to the 1977 level (21.9 quintals). The conclusions are mutually exclusive, but such a method makes it possible to control the quality of the forecast and to promptly detect dubious indicators.

Another method of increase in the reliability of forecasts--through a comparison of the expected fluctuations throughout different territories--is also possible. For example, an analysis of long-term statistical information indicates that declines and rises in the yield of grain crops throughout the USSR accurately repeat the fluctuations according to the sign in the Central Volga meteorological zone and this makes it possible to additionally control on a mutual basis the calculations throughout the Union and this region. The following pattern is also observed well: During years when, at the same time, there is either a decline or a rise in the yield of winter wheat in Rostovskaya Oblast and Stavropol'skiy Kray, the yield of this crop also changes with a similar sign on the RSFSR scale. If, at the same time, the yield of grain crops increases or decreases in the southern and Ural-Irtysh meteorological zones, fluctuations in spring wheat occur with the same sign throughout the RSFSR and so forth. Therefore, a broad expansion of the appropriate research at a regional level is an important condition for an increase in the reliability of both global forecasts and forecasts for individual regions.

Of special interest is the problem of the method of development of efficient quantitative evaluations of the expected yield with a 1-year and longer term of forecast. The higher the reliability of forecasts according to the sign of fluctuations in the yield and the lower the proportion of errors in the determination of forthcoming declines and rises in the yield of grain crops, the higher the quality of these evaluations will be. Therefore, the transition to quantitative forecasts presupposes the fulfillment of a large volume of preliminary calculations and multiaspect comparisons for the purpose of clarifying at the beginning the sign of the expected change in the yield. Only after this problem is considered thoroughly studied, is it possible to turn to the next stage.

The simplest solution lies in the fact that, dividing all observations into two populations, that is, instructing and checking populations, the best parameters characterizing the depth of a decline or rise in the yield are calculated separately, then their effectiveness is examined on the checking population and, if there are sufficient grounds, is corrected slightly. For example, according to the data in table 1 for the 1922-1970 period we will calculate and write out chain indices of harvests for the years when the yield was lowered. In 1923 we have $7.2:7.6=0.95$; in 1924, $6.2:7.2=0.89$; in 1926, $8.2:8.3=0.90$; then 0.93; 0.95; 0.79; 0.77; 0.91; 0.93; 0.90; 0.99; 0.84; 0.93; 0.98; 0.76; 0.83; 0.88; 0.94 follow. The average indicator for the entire period is 0.90 and, if this index is applied to the independent material of the subsequent period (1971-1980), that is, to the checking population, the average value of deviations from the actual declines of this decade will be approximately 9 percent. Since the yield of grain crops in the country in 1978 reached 18.5 quintals and the following year was determined as the year of decline in the yield, the forecast output of grain crops per hectare was calculated as follows: $18.5 \text{ quintals} \cdot 0.90 = 16.7 \text{ quintals}$. The result exceeds the actually obtained harvest by 18 percent. The error is significant and, therefore, another direction in the development of quantitative forecasts--by making evaluations from forecasts of different terms--seems more promising. For example, the above-cited correlations for winter wheat in the RSFSR in the calculations for 1977 have shown that the yield of this crop can exceed the 1975 level (15.6 quintals), but will be lower than 1976 (25.6 quintals). The mean value in this interval is 20.6 quintals as compared to the actual 21.9 quintals. For 1980 a similar calculation pointed to a probable output of 22.6 quintals of winter wheat per hectare.

It is necessary to especially study the potentials for the further improvement in the quantitative evaluations of the long-term yield by means of various territorial comparisons. For example, the following fact is remarkable. When the yield of winter wheat in Rostovskaya Oblast reached record indicators, during the postwar period this invariably foretold a drop of a minimum of 10 percent in its yield throughout the republic during the following year. When the majorant ratio of harvests of grain crops in the Central Volga Zone was 0.98 more than throughout the Union, during the following year less than 95 percent of the previously attained maximum was gathered per hectare.

The nonrandomness of each such correlation, as well as the method of taking it into account in the process of forecast development, still needs to be substantiated, but the promising nature of such a direction in investigations seems indisputable. The advisability of application in this work of methods of pattern recognition and correlation analysis is also indisputable. However, the peculiarity of the statistical material, in which observation errors often are not subjected to a normal distribution, requires a special approach to the selection of approximation criteria and information processing algorithms.⁶

Describing the advantages and disadvantages of the long-term experience in the forecast of fluctuations in harvests, I would like to warn against two kinds of errors: First, against the prejudice that the solution of this problem is possible only at a natural scientific level. The history of science gives many examples of an efficient utilization of patterns disclosed, for the most part, statistically where cause and effect relations temporarily remain unknown. It is well known that effective hypotheses were often stimulated by statistical analysis data.

Second, the present state of development of the method set forth should not be overestimated. Many "blank spaces" remain in it. In particular, in our opinion, it is necessary to improve the methods of description in fluctuations in the yield in regions with good moisture and a high intensity of farming. It is necessary to unify the procedure of singling out zones of stable fluctuations in harvests, as well as zones capable of disclosing drops and rises in the yield in individual regions and oblasts. There is a need for special investigations making it possible to efficiently combine long-term and seasonal forecasts, to find additional methods of increasing the reliability of forecast of the sign of fluctuations in the yield and to narrow down the intervals of the maximum error in quantitative evaluations. We are faced with extensive work on the preparation of statistical information, especially in the part of ensuring the comparability of series of harvests in accordance with the present administrative division during the longest possible period.

All this will require considerable efforts--creative and organizational--and joint work by economists, mathematicians, meteorologists and biologists. However, the experience accumulated makes it possible to regard with optimism the prospects for a practical utilization of yield forecasts on the basis of statistical methods. The possibility of determining with quite a high probability forthcoming fluctuations in the yield, especially of grain crops, when reassuring results of calculations for individual regions and oblasts are obtained, is the basis for this. The practical significance of forecasts increases, primarily at the level of preplan calculations. However, in addition to this, it is advisable to discuss the possibility of their practical utilization directly in the process of planning.

First, in our opinion, in addition to the basic plan variant developed on the basis of traditional methods, it is advisable to check intersectorial balance relations and to determine in advance measures for an efficient regulation of agricultural production in case of fluctuations in the yield according to forecast results. This will make it possible to maneuver production resources more promptly and effectively.

Second, in a number of cases it is possible to partially change the structure of sown areas within the basic positions of the adopted crop rotation schemes, but with due regard for the expected changes in weather conditions. For example, the following pattern is observed. In Voronezhskaya Oblast during years of a general decrease in the yield of grain crops, usually, the greatest drop is noted for winter wheat and barley and a much smaller, for sunflower seeds. Conversely, years unfavorable for sunflower seeds are successful for grain crops. Therefore, it can be used for making adjustments during the planning of crops. Instead of their stable structure throughout the years of the five-year plan it is possible to change over to the fluctuating structure ensuring the best possibilities of utilization of plants under the specific conditions of every agricultural year. In particular, if in Voronezhskaya Oblast in 1979 the area of sunflower seeds had been expanded at the expense of barley, the fallow area had also been increased at the expense of barley and in 1980 the harvesting area of grain crops had been augmented respectively, according to our calculations, in 2 years the total volume of sunflower seed and grain production would have been worth 9 million rubles more. A significant effect can be obtained as a result of a more differentiated selection of varieties of each crop for sowing during a presumable wet or dry year.

Fluctuations in weather conditions manifested in the yield dynamics in the process of planning should be also taken into consideration during an improvement in the placement and specialization of agricultural production. For example, judging from the data of state strain testing plots, the average long-term yield of barley in Kalininskaya Oblast is 32.3 quintals with average fluctuations of 8.5 percent, whereas in Kurskaya Oblast, 31.7 quintals and 14 percent respectively. The yield of oats in Kalininskaya Oblast is lower than that of barley by 2 quintals with average fluctuations of 9 percent and in Kurskaya Oblast, lower than 1.9 quintals with fluctuations of 28 percent. Let us assume that on the basis of these data barley and oats for industrial processing should be placed in the indicated oblasts. If the indicators of the fluctuation in harvests are not taken into consideration, a conclusion can be drawn about an equal effectiveness of the concentration of the sowings of each of the mentioned crops in Kurskaya and Kalininskaya Oblasts. However, if we recognize that the placement of production should be directed specifically toward an increase in its stability and a provision of a minimum of cases and a minimal magnitude of drops in the yield, it will become clear that, for example, the concentration of the sowings of barley in Kursk and of oats in Kalininskaya Oblast has indisputable advantages. Therefore, in all calculations of economic efficiency we must not confine ourselves to a comparison of the average long-term yield. Along with other factors it is also necessary to take into consideration the probable fluctuations in harvests in various regions.

In connection with this of special importance is the problem of an efficient placement of the stock of cows, because these types of animals place the greatest requirements on the indicators of the stability of farming. The existing planning practice for a number of years in some cases stimulated higher rates of growth of

the stock of cows in regions of no more, but, conversely, less stable farming. For example, despite the fact that the indicators of fluctuations in the harvests of fodder crops in the oblasts of the Central-Chernozem Region are approximately one-third higher than in the Central Region and the prospects for irrigation are much lower, there are almost twice as many cows per 1,000 residents in the Central-Chernozem Region. The situation has not improved in the last 20 years. Taking into consideration the much lower population density and the lesser stability of the feed base in this region, here it is advisable to accelerate the development of hog breeding, meat poultry raising and the fattening of large-horned cattle and to improve the organization of production of seeds of grain crops and, partially, grass for industrial oblasts in the nonchernozem center so that they can release additional areas and feed in the interest of dairy farming. At the same time, in Moscow and Tul'skaya Oblasts the proportion of cows in the herd could be greatly increased through the delivery of part of the young stock for further raising and fattening to other oblasts, including sugar beet sowing oblasts (Orlovskaya, Lipetskaya, Tambovskaya and Voronezhskaya).

Thus, a study of interannual changes in the natural conditions of agricultural production manifested in fluctuations in harvests makes it possible in some measure to improve the system of both current and long-term planning.

FOOTNOTES

1. K. Marx and F. Engels, "Soch." [Works], Vol 1, p 563.
2. K. Marx and F. Engels, "Soch.", Vol 35, p 128.
3. K. Marx and F. Engels, "Soch.", Vol 35, p 128.
4. See: "Tezisy Dokladov III Vsesoyuznoy Konferentsii 'Primeneniye Matematicheskoy Statistiki v Ekonomike Sel'skogo Khozyaystva'" [Abstracts of Reports of the Third All-Union Conference "Application of Mathematical Statistics in the Economics of Agriculture"], Moscow, All-Russian Scientific Research Institute of Labor in Agriculture, 1972, pp 40-43.
5. See: "Trudy Glavnoy Geofizicheskoy Observatorii" [Works of the Main Geophysical Observatory], Issue 354, Leningrad, Gidrometeoizdat, 1975, p 6.
6. See: "VESTNIK STATISTIKI, 1969, No 7, pp 23-31; V. I. Mudrov and V. L. Kushko, "Metod Naimen'shikh Moduley" [Method of Least Moduli], Moscow, Sovetskoye Radio, 1976.

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TILLING AND CROPPING TECHNOLOGY

SOIL PREPARATION, SOWING OF WINTER CROPS IN BELORUSSIA

Minsk SEL'SKAYA GAZETA in Russian 20 Aug 82 p 1

[Article: "There Must Be Proprietary Interest in Winter Grain Crops"]

[Text] Current Survey of the Belorussian SSR Ministry of Agriculture

In the republic winter crops account for about 40 percent of the grain wedge--more than 1.416 million hectares. The general yield level and gross grain output largely depend on their productivity. Very few days remain before the beginning of sowing of winter crops. However, a large volume of presowing operations still have to be performed on many farms in the republic. An analysis shows that it is necessary to sharply intensify the rates of seed and soil preparation and of fertilizer application.

Information on the Course of Preparation of Winter Crops for Sowing on Kolkhozes and State Farms in the BSSR on 19 August 1982

(in percent of the plan)

Indicators	Oblasts					
	Brest	Vitebsk	Gomel	Grodno	Minsk	Mogilev
Fields cleared of predecessors	84.5	67.4	65.9	77.6	64.1	55.6
Soil plowed for winter crops	28.9	37.9	34.9	39.7	28.0	36.1
Organic fertilizers carted out for winter crops	18.0	76.0	37.0	22.2	17.7	32.1
Seeds of winter crops placed in the basic stock	102.9	63.3	98.6	94.0	78.5	69.9
Including of first and second categories with respect to the need	31	13.6	28	22.5	26	11

As of 18 August the republic's kolkhozes and sovkhoses applied 2.6 million tons of organic fertilizers for winter sowing, which comprises 26.6 percent of the assignment (including the Scientific Production Association for Agrochemical Services to Agriculture, 1.3 million tons, or 41.3 percent of the assignment). There is an even worse situation in individual rayons and farms. The transportation of organic fertilizers for winter crops has not been organized on the Kolkhoz imeni Krupskaya in Rogachevskiy Rayon until recently. There is a similar situation on the 20 Parts"yezd Kolkhoz in the same rayon. In Shklovskiy Rayon on the day of

the check 10 farms did not begin the transportation of organic fertilizers and in Gantsevichskiy Rayon, 5. Signals on the lack of proper control over the transportation of mineral fertilizers, primarily ammonia water, are received from individual rayons.

The rates of transportation of organic fertilizers do not correspond to existing opportunities. It is necessary to take exhaustive measures so that the established volumes of application of these fertilizers to winter crops are fulfilled.

Despite the fact that on the republic's kolkhozes and sovkhozes 65.5 percent of the areas have been cleared of predecessors, only 444,100 hectares, or 31.4 percent of the plan, have been prepared. In most rayons plowing rates are very low. The situation in Baranovichskiy, Gantsevichskiy, Kamenetskiy, Lyakhovichskiy, Tolochinskii, Sennenskiy, Rossonskiy, Dokshitskiy, Kalinkovichskiy, Ostrovetskiy, Myadel'skiy, Borisovskiy, Berezinskiy, Slavgorodskiy, Klichevskiy and Klimovichskiy Rayons evokes concern. In these rayons these operations have been performed on less than one-third of the areas necessary for the sowing of winter crops. On most farms of these and some other rayons links for soil preparation have not been established, a large number of tractors are idle, daily assignments are not presented to crews and, in fact, the fulfillment of output norms is not controlled by anyone. For example, on the Kolkhoz imeni Kalinin in Smorgonskiy Rayon 10 tractors were idle and only two tractors operated in soil preparation. In a number of rayons many tractors are idle owing to the lack of machine operators. At the same time, the opportunities to enlist all the machine operators of the local farm, of industrial enterprises and of patronage organizations are utilized poorly. In Baranovichskiy Rayon until recently 13 farms have actually not begun soil preparation.

Such a situation with soil preparation for fall sowing threatens the sowing of winter crops at the optimum time with disruption. It is necessary to immediately regulate the work of links on the preparation for fall sowing, to strictly control the fulfillment of daily assignments and to maximally utilize moral and material incentive measures.

The preparation of seeds of winter crops must be handled with special responsibility. As of 18 August in the republic 270,300 tons of seeds, or 81.2 percent of the need, were laid in and in Vitebsk Oblast, only 56 percent and in Mogilev Oblast, 62.7 percent of the plan. The seeds of winter crops procured in Braslavskiy, Glubokskiy, Dokshitskiy, Lioznenskiy, Rossonskiy, Ostrovetskiy, Oshmyanskiy, Krupskiy, Uzdenskiy, Belynichskiy, Mstislavskiy, Goretskiy and Klimovichskiy Rayons represent less than one-half of the need.

The wintering of winter crops and resistance of plants to snow mold largely depend on the sowing qualities of seeds. Therefore, for the purpose of ensuring physiological ripeness all freshly harvested seeds designed for sowing should be subjected to thermal air heating. It is also necessary to sow all standard seeds of carryover stocks of winter rye in a mixture with freshly harvested seeds of the same variety in a ratio of 1:1. In the very near future it is also necessary to complete the preparation and check of all seeds for sowing qualities, to increase the rates of their treatment, to promptly analyze the situation on every seed breeding farm, to provide all possible help in the harvesting and preparation of seeds and, as a result, to supply other farms with seeds. The task is to see to it that in the next few days every kolkhoz and sovkhoz fully meets its need for seeds of winter crops with high-yielding qualities.

The BSSR Ministry of Agriculture draws the attention of specialists and managers of farms and of administrations of agriculture of rayon and oblast executive committees to the low rates and makes it incumbent upon them to take decisive measures for a prompt preparation for and performance of the sowing of winter crops at the optimum time with a high quality of work.

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TILLING AND CROPPING TECHNOLOGY

HARVESTING PREPARATIONS FOR LODGED GRAIN

Kiev SIL'S'KI VISTI in Ukrainian 7 May 82 p 2

[Excerpts] Winter crop lodging (especially in years with excessive moisture and in irrigated lands) causes considerable complications and prolongs harvesting, leading to a crop shortfall and lowering of grain quality. The most effective method of combating lodging is to work crops with growth inhibitors. Results of research conducted by scientific institutions over many years and leading farm experience in our country testify to the high effectiveness of this agricultural measure. Using preparation TUR on winter wheat in years with normal weather conditions yields a harvest increase of 2.5-3.5 quintals grain per hectare; Campozan on winter wheat yields 2.7 to 6.7 quintals.

Almost everywhere last fall wheat and rye crops had a well-developed vegetative mass, and on a number of plots they were even overgrown. In this spring's weather conditions (frequent and abundant rains and slow accumulation of positive temperatures) and intensive further development of winter crops should be expected which may cause crop lodging.

To avoid plant lodging, growth inhibitors should be worked into well-developed (especially thickened) winter crops in good soil and moisture conditions, and also in conditions of sufficient natural moistening or on irrigated lands when intensive growth of the vegetative mass is expected. This urgent work should be done first of all on areas occupied by high quality wheat varieties inclined to lodging.

On some farms growth inhibitors are applied to weed infested crops. This creates even more favorable conditions for weed growth, because cereal crops worked with these preparations have a decreased competitive ability. If wheat is allocated to fields with a high agrophone, and weeds have appeared there, they should be sprayed with the preparation TUR mixed with herbicides. For each hectare 1.2 to 1.5 kg amine salt 2.4-D (preparation) and 2 kg activated chlorcholine-chloride should be used.

Weed infested crops over areas with a low agrophone should not be worked with growth inhibitors. It is also prohibited to spray poorly developed, thinned and beaten down crops.

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TILLING AND CROPPING TECHNOLOGY

HARVESTING LOW GROWING GRAIN CROPS

Kiev SIL'S'KI VISTI in Ukrainian 30 Jun 82 p 1

[Article by chief of mechanization and electrification administration, UkrSSR Ministry of Agriculture and Ukrainian Scientific Research Institute for Mechanization and Electrification of Agriculture: "Peculiarities of Harvesting Low Growing Grain Crops"]

[Text] Low growing, weed free grain crops less than 50 cm tall with a density of 280 plants per square meter should be harvested by straight combining; thinned or weed infested spiked crops and those with oversown grasses over 55 cm tall even with a density of 250 plants per square meter should be harvested by the separation method, using double sheaves. The narrower the sheaves the smaller the losses in pick-up. To provide for appropriate bundle compactness and better plant adherence, grain crops should be mowed in sheaves only in the grain waxy ripeness stage, when the stalks are still moist.

To obtain compact sheaves in harvesting low growing and thinned grain crops with a sheaf harvester, it is essential to decrease the width of its expulsion window, installing a passive extension on the conveyer made of sheet steel, 1-1.5 mm thick and 200-300 mm wide. The conveyer extension is installed with a clearance of 20-25 mm between its selvedge and conveyer strip borders.

Centered in front of the harvester expulsion window a sloping board is attached, made of sheet steel 1.5 mm thick in the form of an equilateral trapezium, with the large base length being 350-400 mm, the smaller 80-100 and the height 350 mm. Sheaves may also be doubled with harvester ZHNS-6-12 which has a reversible conveyer. However, there are few of those available on farms at present. Sheaves are doubled according to the diagram "sheaf on sheaf" with harvesters ZHVN-6 equipped with the so-called sliding dashboards. The sheet steel sliding dashboard is installed on the harvester cutting apparatus in front of the expulsion window. Its purpose is to protect the lower sheaf from being ruined by the cutting apparatus in stacking the upper sheaf.

To form double sheaves two combines with harvesters ZHVN-6 should be mowing in one field moving in opposite directions, meeting on field edges (on return strips). One unit forms the lower sheaf, the second (with a harvester equipped with sliding dashboard) moves to the opposite side following the passage of the first.

Grain harvesting combine "Nyva" and "Kolos" windrowers can mow grain crops with straight combining at a cutting height of up to 5 cm on fields with an even soil microrelief. It is, therefore, unnecessary to reconstruct the windrower cutting apparatus of these combines for low cutting requiring the turning over of guard bars 180 degrees. Windrower shoes should be set at the highest level and the balance mechanism regulated so that the cutting apparatus is parallel to soil level.

For mowing moist, weed infested grain crops the regular windrower or combine cutting apparatus is reconstructed for two knives, consisting of a lower knife (stationary) and an upper movable knife. For this purpose segments are unriveted from the movable knife and are riveted to the back so that the blade cut is on top.

To prepare the stationary (lower) knife, the knife back is used or an appropriate size bar. Segments are riveted to its upper plane with the cut turned towards the bottom. Knives are mounted so that movable and stationary knife segments come in contact with each other with smooth surface sides. All guards are removed from the cutting apparatus. With the help of steel rod brackets 30x6mm in crosscut and welded to the back, the stationary knife is attached with bolts to the horizontal shelf corner to sockets which held guards previously. With segments towards the bottom, the movable knife is installed on the stationary knife. Steel bar clamps assure movement direction and the fit of the movable knife on the stationary knife.

Because of unevenness in mass loading in harvesting low growing grain crops the regular regime in the work of the combine thresher is upset. In addition, the sliding guards of the central portion of harvester shaft thresh and disperse grain beyond harvester limits. Getting into the threshing apparatus shaft threshed grain is broken up and damaged, and groat crop grains have their husks removed. To prevent this a rubberized belt blade 180 mm wide is attached before each row of guards to shaft housing, and a half-cylindrical sheet steel wind screen is placed over the central shaft portion.

In picking up sheaves of low growing grain, pulse, and groat crops canvas transporting pick-up equipment PPT-3 and PPT-3A should be used. Using these harvest losses are 1.5-2 times lower than with the drum type.

Drum type pick-up equipment work quality in picking up sheaves, formed during mowing of low growing grain crops, can be considerably improved by providing it with an additional guard drum. It consists of a pipe 50 mm in diameter at the end of which pins are welded in 25 mm in diameter, and pins for three rollers with spring guards from an unused pick-up machine. Guards are shortened by 40 mm. The drum is fastened by two clips mounted on the side walls of the pick-up machine. Side wall rigidity is previously reinforced by attaching 6mm thick steel bars to them. The guards of the additional drum are placed between guards of the basic pick-up machine. Drum gear moves by chain drive from the basic pick-up roller.

Uneven thresher loading on low growing or thinned grain crops violates the normal course of grain threshing and grain pile separation. In addition, the

separating surfaces under the drum, straw shaker keys and sieve step board may become clogged if there are many weeds in the grain mass; soil can also get into the combine thresher (during low cutting). Under these conditions combine work may be normalized by forming larger sheaves by doubling them or utilizing wide sweep windrowers, and also increasing the working pace. However, combine speed should not be more than 7 km per hour. The threshing apparatus must also be painstakingly regulated, especially the number of drum turns conforming to harvesting conditions. During threshing of dry grain crops grain crumbling is decreased by decreasing drum turns, and insufficiently threshed grain is avoided by decreasing the clearance under the drum.

Work experience by leading combine operators shows that there are 30 points on the combine which need additional solidifying. These points must be painstakingly sealed. In harvesting low growing grain crops the combine straw separator needs to be solidified. First of all the back valve and separator bottom have to be set, then the lengthwise slits in between side walls and separator bottom and the meshwork, the side ventilation windows, have to be covered with rubberized band strips.

To avoid losses in chaff and fine straw in the low growing mass, especially in harvesting barley, machine operators at the kolkhoz imeni Lenin in Zborivskiy Rayon, Ternopol'skaya Oblast, prepared an adapter to compress and form the mass in the straw separator. Belts fastened at the shaft to the corner of thresher frame upper part form a screen which changes the straw trajectory at the beginning of filling and does not form the stack on guards but at the beginning of straw separator solid bottom. The mass is formed and is held until the straw packer rakes begin moving it to the bottom guards already somewhat compressed and sufficient in bulk to avoid straw falling through the guards. The attachment consists of a shaft for fastening six rubberized strips 10 cm wide and 210 cm long with weights attached to the lower end.

To avoid grain crumbling during insufficient thresher loading, the threshing apparatus for dry grain crops should be set at the least possible drum turns. Grain damage is more likely to occur from the speed of drum turning than from threshing clearance. Insufficiently threshed grain is avoided by decreasing the clearance under the drum.

The mass coming out of the threshing apparatus may reach the end of the straw shaker which leads to increased losses. This can be avoided by extending the straw shaker apron (so that it touches the keys). Separating metal aprons are placed above straw shaker keys in addition to those made of tarpaulin.

Appropriate preparation of harvesting technology, its correct utilization with regard to harvesting conditions and exact adherence to agrotechnological requirements will prevent losses in harvesting grain crops.

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TILLING AND CROPPING TECHNOLOGY

TILLING, CROPPING TECHNOLOGY MEASURES IN CHERKASSKAYA OBLAST

Kiev SIL'S'KI VISTI in Ukrainian 15 Jul 82 p 2

[Excerpt] Field Crop Rotation, a System of Tilling and Fertilizing Fields at the Kolkhoz imeni 18 Zyzd VKP(b)

<u>No. of field</u>	<u>Crop Rotation</u>	<u>Basic Soil Tillage</u>	<u>Fertilizing</u>
I	Corn for silage green feed	Stubble mulching with disk stubble mulchers to depth of 5-6 cm. Plowing depth 25-27cm.	N ₆₀ P ₅₀ K ₇₀ underplowing. N ₆₀ during top dressing.
II	Winter wheat	Two track mulching with disk stubble mulchers to depth of 5-6 cm. Plowing depth 22 cm along with packing.	N ₉₀ P ₇₀ K ₇₀ underplowing, during sowing into rows and during top dressing.
III	Sugar beets	Mulching with disk stubble mulchers to depth of 5-6 cm, repeated mulching, plowing depth 30-32 cm.	N ₁₀₀ P ₁₂₀ K ₁₂₀ + 60-70 tons manure per hectare underplowing. N ₃₀ during top dressing.
IV	Corn for seed	Plowing to depth of 25-27 cm.	N ₈₀ P ₆₀ K ₈₀ underplowing.
V	Sunflower, spring and perennial grasses	Two track mulching with disk stubble mulchers to depth of 5-6 cm, plowing depth 25 cm.	N ₅₀ P ₅₀ K ₅₀ underplowing.
VI	Annual and perennial grasses	Three-four track mulching with disk stubble mulchers, plowing depth 25 cm.	N ₂₀ P ₃₀ K ₃₀ during top dressing of perennial grass, N ₄₀ P ₄₀ K ₄₀ underplowing for annual grasses.

<u>No. of field</u>	<u>Crop Rotation</u>	<u>Basic Soil Tillage</u>	<u>Fertilizing</u>
VII	Winter wheat	Mulching with stubble mulchers after annual grasses and first mowing of perennial grasses to depth of 5-6 cm, plowing depth 27 cm after perennial grasses, 22 cm after annual grasses with packing.	N ₆₀ P ₄₅ K ₄₅ underplowing, during sowing in rows and during top dressing.
VIII	Sugar beets	Mulching with stubble mulchers to depth of 5-6 cm, repeated mulching, plowing depth	N ₁₀₀ P ₁₂₀ K ₁₂₀ + 60-70 tons manure under plowing, N ₃₀ during top dressing.
IX	Pulse crops	Plowing to depth of 22 cm.	N ₁₀ P ₁₀ into rows during sowing.
X	Winter wheat	Double track mulcing with disk stubble mulchers to depth of 6-8 cm, working with deep tillage cultivator to depth of 6-8 cm (surface tilling).	N ₆₀ P ₄₅ K ₄₅ underplowing, into rows during sowing and top dressing.

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END